

THE AUTOMOBILE

WEEKLY

NEW YORK—SATURDAY, JULY 23, 1904—CHICAGO

10 CENTS

RECORDS FALL AT EMPIRE CITY TRACK.

HEAVY showers interfered with the sport at Saturday's race meet at the Empire City track. Rain began falling lightly just as the second heat of the fifteen-mile free-for all was started, as the third event on the program, and steadily increased until it was pouring down in torrents as the heat finished. The management announced an intermission of forty-five minutes, until 4 o'clock, to allow the track to dry off; but instead of drying off, it was converted into a sea of mud by heavy showers that fell intermittently for an hour, when the meet was declared post-

poned, to be continued on Monday if the weather was suitable. And the 5,000 spectators who had almost completely filled the grandstand and patiently awaited the pleasure of the weather, departed by automobile and trolley car.

The heat of the free-for-all, 1,432 to 2,204 pounds, was the only interesting and spectacular event of the afternoon. The starters were Paul Sartori, in A. G. Vanderbilt's 60-horsepower Mercedes; Carl Mensel in George Arents, Jr.'s 60-horsepower Mercedes, and Guy Vaughn, in the 40-horsepower Decauville racer, owned by

Tod Sloan. The event proved a runaway for Sartori, who pulled into the lead entering the back stretch and continued to widen the distance between himself and Mensel, who in his turn opened a steadily widening gap in front of Vaughn. At the start the course was heavy with dust, which the two big Mercedes cars tore up in dun-colored clouds as they skidded on the turns. Miles were spun off in less than a minute from the third mile to the finish, Sartori winning by almost a mile in 14:40, having gained one and a half laps on Vaughn, whose tire went flat and came near send-



SPECTATORS' CARS DRIVING ALONG THE AVENUE FROM THE GRAND STAND TO THE GATE AT THE EMPIRE CITY TRACK, YONKERS, N. Y.



START OF SECOND HEAT OF FIFTEEN MILE FREE FOR ALL RACE AT THE EMPIRE CITY TRACK ON SATURDAY.

ing him through the outer fence on the turn. Mensel's time for the fifteen miles was 15:35 3-5, and Vaughn's, 16:57 3-5. The leader's times by miles were: One mile, 1:02 4-5; two, 2:01 2-5; three, 2:59 4-5; four, 3:57 3-4; five, 4:56 4-5; six, 5:54 4-5; seven, 6:52 4-5; eight, 7:50 1-5; nine, 8:50; ten, 9:48 3-5; eleven, 10:46 1-5; twelve, 11:45; thirteen, 12:42 3-5; fourteen, 13:41 3-5; fifteen, 14:40. The track record for fifteen miles is 14:21, made by Oldfield at Denver.

NEW LIGHT CLASS RECORDS.

The first event was a ten-mile run for cars of any motive power weighing from 881 to 1,432 pounds. The starters were Maurice Bernin, in W. Gould Brokaw's 30-horsepower Renault; Guy Vaughn, in the 40-horsepower Decauville; W. F. Winchester, in the Franklin 10-horsepower racer; Walter Christie, in his 30-horsepower racer; and M. J. Seymour, in Oscar Lewishon's 18-horsepower Mercedes. This race was a runaway for Bernin, who won by seven-eighths of a mile from Vaughn in 10:13 2-5 and lapped all the others. Winchester was third in 11:36 1-5. Vaughn's time was 11:01 1-5. Christie punctured a tire and Seymour met with a mishap so that both withdrew. Class records were established from one to ten miles as follows: One mile, 1:04 2-5; two, 2:04 1-5; three, 3:06 3-5; four, 4:07; five, 5:08 1-5; six, 6:08 4-5; seven, 7:09 2-5; eight, 8:09 2-5; nine, 9:11 3-5; ten, 10:13 2-5.

A special five-mile race for stock Franklin cars was run off as the second event. There were five starters: Alfred F. Comacho, Harry Esselstyn, Charles Singer, Thomas Lannon and D. M. Updike. It is worthy of note that this is probably the only race run

at any large eastern meet this season in which all the drivers entered actually started. There was better competition in this event than in the others, as the cars kept closer together, Esselstyn winning by only about twenty yards from Comacho in 8:49 3-5. Comacho's time was 8:51 1-5. Singer was third in 9:19.

As an indication of the slippery condition of the course when the fast free-for-all heat finished, Arents' Mercedes, with Mensel driving, skidded through more than 90 degrees on the middle of the first turn, but was brought to a stop without damage. Everybody but the contestants had sought shelter before this time, and as soon as the showers ceased the spectators started for home.

A most commendable departure from the arrangements at all previous eastern meets, both on Saturday and the following Monday, was the keeping of the lawn between the grandstand and the track entirely free of spectators' cars and of spectators themselves. Instead the cars were parked under the stand and beneath the trees back of the stand. By this regulation the possibility of serious injury to onlookers and to valuable machines in case a competing car should leave the track and crash through the fence was eliminated. There was an unusually large congregation of upward of 325 cars at the meet, by far the greater number being touring cars with canopy tops or enclosed bodies; while many side-entrance machines were noted among them.

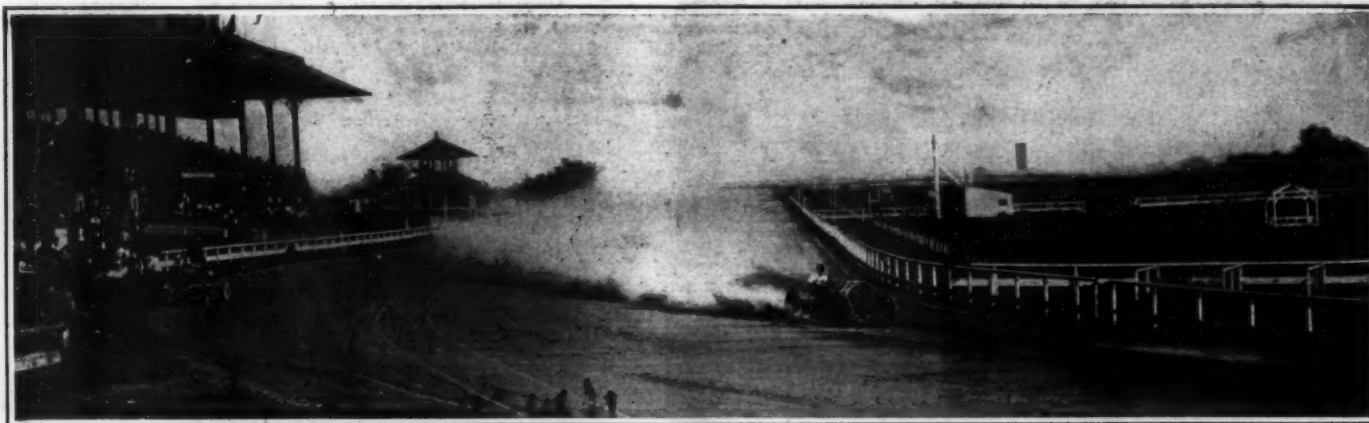
THE CONCLUSION MONDAY AFTERNOON.

Notwithstanding renewed showers Sunday night and a cloudy Monday morning, the program was concluded Monday after-

noon, when the clouds rolled away and the sun shone hotly. Uncertainty as to whether the events would be run off, and also the business engagements of most of Saturday's attendants, resulted in a slim crowd. Those who staid away did not miss a great deal, however, as there were many withdrawals by entrants in the several events, and the racing, which began at 3 p.m., was finished at 5 o'clock.

SARTORI WINS AND BREAKS RECORDS.

The best event of the whole meet was the final of the fifteen-mile free-for-all for cars weighing from 1,432 to 2,240 pounds, which was run as the first event. The starters were Sartori, in Vanderbilt's Mercedes; Mensel, in Arents' Mercedes; Vaughn, in Tod Sloan's Decauville; Bernin, in Brokaw's Renault, and J. W. Hilliard, in Nathaniel Huggings' 40-horsepower Decauville. The last two contestants were admitted to the final without running off a heat, as they were the only starters to appear when their heat was called. Sartori quickly went into first place and continued to gain, while the others strung out, with Bernin (Renault) second, Mensel (Mercedes) third and Vaughn (Decauville) fourth. Hilliard (Decauville) withdrew in the second mile. After the first mile, the laps were turned off considerably under the minute, with the Renault holding a slight lead over the Arents car until the tenth mile, when Mensel passed Bernin, taking second place, which he held to the finish. The Renault injured a tire and slowed perceptibly, being passed by Vaughn (Decauville) in the fourteenth mile and withdrawing. Sartori finished nearly a lap in the lead, winning in 14:42 2-5, and was going so well that he signalled the officials

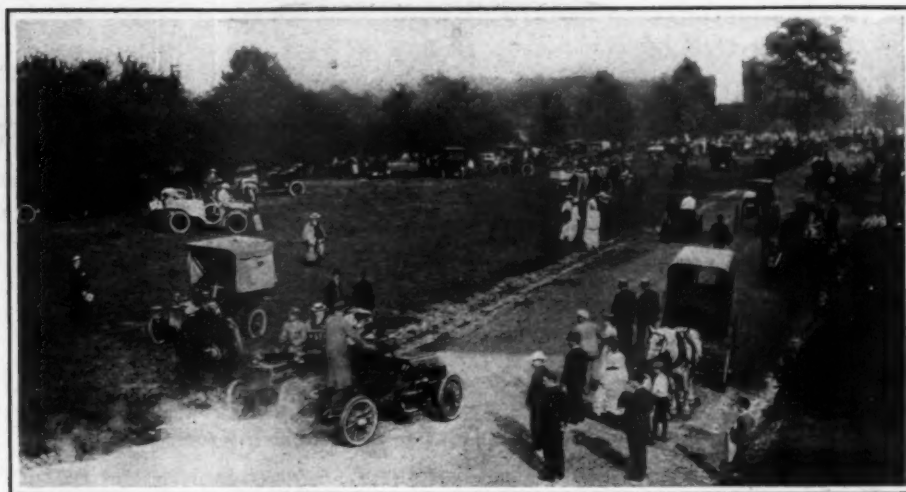


SARTORI IN ALFRED VANDERBILT'S 60-H.P. MERCEDES ROUNDING TURN OPPOSITE CLUB HOUSE WHEN GOING UNDER THE MINUTE.

that he would go on for track records from sixteen to twenty miles. Mensel finished second, nearly a lap to the bad, and Vaughn third, almost as far behind Mensel and lapped once by Sartori. New records were made by Sartori from sixteen miles to twenty, breaking Henri Fournier's figures. The records up to fifteen miles are held by Oldfield. The new times are: Sixteen miles, 15:41 2-5; seventeen, 16:39 4-5; eighteen, 17:38 4-5; nineteen, 18:37 1-5; twenty, 19:37 1-5. Fournier's record for twenty miles was 25:20 2-5. Sartori's times by miles for the fifteen miles were: One, 1:02; two, 1:59; three, 2:57; four, 3:55; five, 4:53; six, 5:52; seven, 6:51 4-5; eight, 7:51 3-5; nine, 8:50; ten, 9:48 4-5; eleven, 10:46 4-5; twelve, 11:46 3-5; thirteen, 12:45 3-5; fourteen, 13:44; fifteen, 14:42 2-5.

THE EMPIRE HANDICAP.

Great interest was shown in the Empire Handicap five-mile free-for-all. The starters in the first heat were H. E. Rogers in a 24-horsepower Peerless, Wayne Kratzer in a 10-horsepower Duryea, J. W. Hilliard in Huggins's 40-horsepower Decauville, D. Landau in Joseph Cowan's 15-horsepower Panhard, "Teddy" Goodman in a 16-horsepower Rambler, and W. F. Winchester in the 10-horsepower Franklin racer. All were started from the tape, the handicaps being by time instead of distance. The Duryea and Rambler were sent away first, followed by the Peerless and Franklin. The Duryea displayed unexpected speed, but the Franklin picked up in the second mile, passing the Duryea on the turn into the back stretch and the Peerless as they entered the home straight. Hilliard in the Decauville then gradually picked up and passed the Franklin entering the last turn in the fourth mile and won by half a mile in 6:02, with a handicap of 40 seconds. Winchester (50 seconds)



IN THE ORCHARD BACK OF THE GRAND STAND AT THE EMPIRE CITY TRACK

was second, and Rogers (70 seconds) was third.

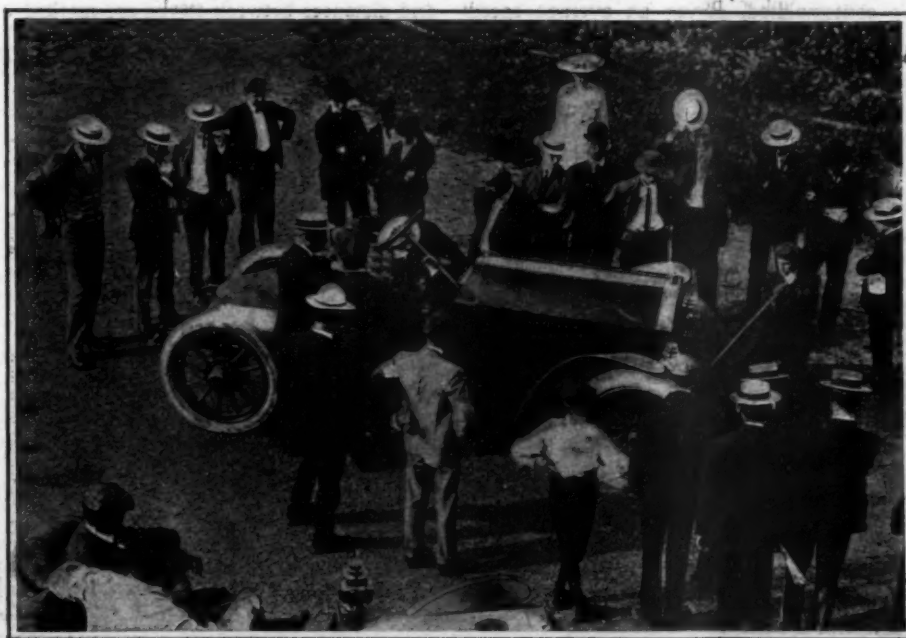
The second heat of the same race was faster and more interesting, the starters being Sartori (40-horsepower Mercedes), 10 seconds handicap; Bernin (30-horsepower Renault), 15 seconds; A. E. Morrison (24-horsepower Peerless), 110 seconds; Mensel (60-horsepower Mercedes), 10 seconds; Vaughn (40-horsepower Decauville), 40 seconds. H. S. Harkness, who was entered to drive his 60-horsepower Mercedes, did not put in appearance Saturday and arrived by touring car Monday with the explanation that his Mercedes was out of order. In this heat Arents Mercedes and Brokaw's Renault ran much better than in any of the previous events, developing speed fully equal to that of Vanderbilt's Mercedes. Mensel, in Arents' car, kept on even terms with Sartori in Vanderbilt's Mercedes and passed Bernin in the Renault in the back stretch in the fourth mile.

Tremendous clouds of yellow dust were thrown up on the turns, the huge machines plunging into complete obscurity in them when going at a speed of more than sixty miles an hour. In the fifth mile Sartori slowed down somewhat and coasted the last turn, coming to a stop at the head of the home straight. Bernin, with the Renault, won in 5:30, with the benefit of his 15 seconds handicap, Morrison's 110-seconds handicap secured him second place, and Mensel was third. After the finish Sartori's car was pushed to the judges' stand and then towed off the track. Examination showed that a leak in the pump had allowed the cooling water to escape so that in the twenty-mile event and the five-mile heat following so soon afterward, the engine had overheated with serious results.

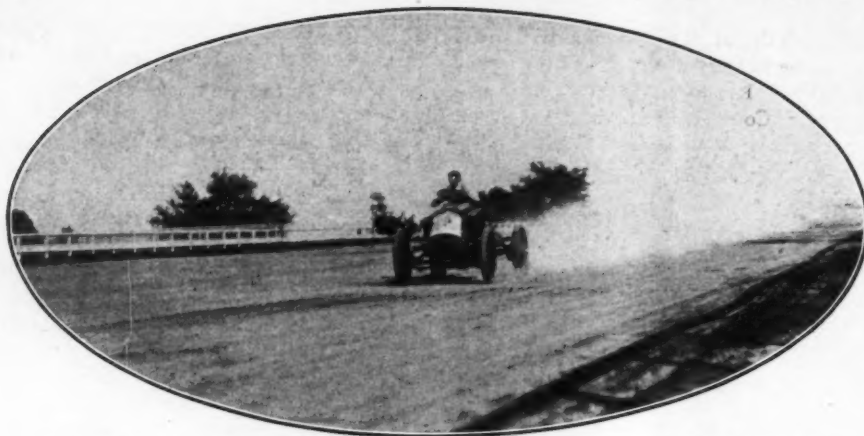
MORRISON WINS THE FINAL.

There were four starters in the final of the five-mile, as follows: A. E. Morrison (24-horsepower Peerless), 110 seconds; W. F. Winchester (10-horsepower Franklin), 60 seconds; Maurice Bernin (30-horsepower Renault), 15 seconds; and J. W. Hilliard (40-horsepower Decauville), 40 seconds. Morrison, with his big handicap, had made more than one lap and Winchester had nearly completed a mile, when Bernin was sent away. But the Renault got under top speed almost instantly and went out after the flying Winchester and Morrison, the limit man. Hilliard's Decauville had a leaking pump connection and hot water and steam poured from the bottom of the radiator. With a hot engine, it was only able to keep on even terms with Morrison's Peerless, although the latter carried a touring body with only the tonneau seats removed. In the back stretch in the fifth mile Bernin succeeded in overhauling and passing the Franklin, but he could not overcome the big allowance given Morrison, who won in 4:52 2-5, or 6:02 2-5 actual running time. Bernin ran second in 5:12 3-5 and Winchester third in 5:16 2-5.

There were only two starters in the mile record trials. Mensel, in George Arents, Jr.'s, 60-horsepower Mercedes, drove a mile



STARTING THE MOTOR OF THE 75-HORSEPOWER WALTER CAR WITH BAR.
First Car in America Started with Bar.



BERNIN IN W. GOULD BROKAW'S RENAULT COMING DOWN THE HOME STRETCH.

in 59 2-5 seconds, and Bernin, in W. Gould Brokaw's 30-horsepower Renault, made a circuit in 59 seconds flat.

The best mile of the meet was made by Sartori, who drove the second mile in the final of the fifteen-mile free-for-all in 57 seconds flat.

PARK AUTOS IN NEW YORK.

THE hackmen who ply their calling in Bronx Park, New York, and spend their spare time in devising means for making the park-visiting public fork over more of its good hard cash, will soon be brought to terms, according to William P. Schmidt, Park Commissioner for the Bronx, who states that an automobile company has been given a concession to inaugurate an automobile cab service in the Bronx and Pelham Bay parks. The general plan will be somewhat similar to that under which the Central Park automobile cab service is operated. The main stand will be at the elevated railroad station at Third and Pelham avenues, and from this point the fares will be 10 cents for the trip to and from the Botanical Gardens and the same to the Zoological Park and return, while it will cost but 25 cents to go to Pelham Park and back, a distance of about 4 miles. The present cab charge for this trip is \$1 for each passenger, or more, if the cabby can get it.

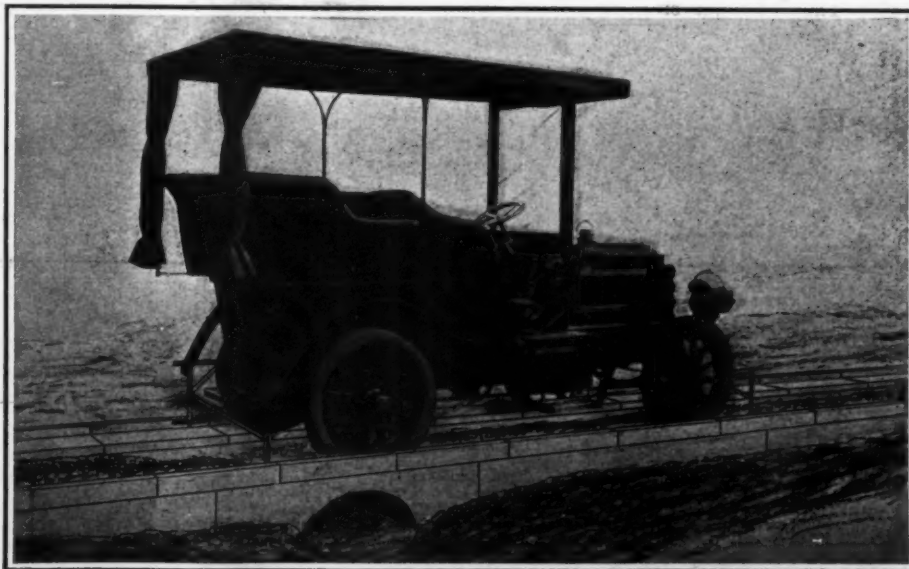
The company to whom the concession has been given has agreed to these low rates in return for a low charge for the concession. The name of the concern has not yet been divulged, but it is said to be a large and responsible one. As soon as the arrangements have been completed the cab-men will be forced to pick up their fares outside of the parks. They will, of course, be permitted to drive through, but can only take passengers from outside, and those who have taken up a stand in the park will have to locate elsewhere. It is anticipated that the service will be in operation about August 1.

Automobiles on Tracks.

A rather novel experiment in interurban traction is to be made before long in the neighborhood of Warsaw, Ind., if the plans

of J. V. Godman, a civil engineer of that town, materialize. Mr. Godman has invented what he calls a "monolithic railway," which is in effect a permanent way with rails of concrete about 12 inches wide, reinforced by expanded metal, instead of steel. The rolling stock is to consist of automobiles and trailers, with pneumatic tires; and, according to the inventor's idea, these are to be kept on the "rails" by raised flanges on the outer edges of the rails themselves, as shown in the illustration herewith. A drawing furnished by the inventor shows an automobile 'bus, with small horizontal rubber-tired guide wheels at front and rear, which are to bear against the track flanges and protect the regular tires from side friction. A special guiding arrangement for crossing highways is also shown.

According to Mr. Godman, a track ten miles long, connecting two towns with a summer resort between them, is before long to be built to test the practicability of the scheme on a working scale. It is proposed to use three 16-horsepower touring cars, each to cost, with canopy top and side curtains, \$1,500, and three twenty-passenger trailers at \$8,000 each. One trip an hour is contemplated, giving an average speed of fifteen miles per hour between stops.



"MONOLITHIC RAILWAY" FOR AUTOMOBILES, DESIGNED BY J. V. GODMAN OF WARSAW, IND.

The maximum gradient is to be 3 per cent., and curves are to be of 10 per cent. at least.

The drawings, etc., are accompanied by a table of estimated costs, from which it is made to appear that the total cost of a ten-mile trip will be 77½ cents. This looks very well, but a study of the table shows that the repair bills and tire bills have been either overlooked or else included in the 15 per cent. per annum allowance for depreciation. In reality they would hardly add less than 50 per cent. to the above estimate of expense. The right of way is supposed to be donated, and the cost of track is reckoned at \$2,500 per mile, depreciation 3 per cent.

The illustration shows slight supports at front and rear for the guide-wheels. Even with these, however, it would be necessary to steer the car, and as the estimate does not provide for additional help the driver would also have to collect fares. This would be possible, under the circumstances, only at stops.

The general scheme of the invention is interesting, as it suggests the automobile highway which has been frequently suggested for Long Island and elsewhere.

THE latest map to be issued by the Automobile Club of America, in its series of road maps of Eastern States, is one showing the central section of New Jersey. It includes all the territory between Jersey City and Philadelphia, the northern approaches to which are shown, but not the city itself; also all territory east of Whitehall and Schuylkill, Pa. Like the other maps of the series, it is cut into rectangles, each 43-4 by 9 inches, and mounted on muslin with 1-8 inch of space between rectangles, so that it folds readily into any shape without breaking. The through routes and distances between towns are marked in red.

WHITE MOUNTAINS TOURNEY.

Tours Completed According to Program— Good Roads Meeting Postponed.

Special Correspondence.

BRETTON WOODS, N. H., July 13.—The regular schedule of hill-climbing events having been completed on Monday and Tuesday, it was the intention of the officials to hold a series of special climbs against time to-day (Wednesday) should the weather prove favorable. As morning broke with rain pouring down, all who had left early calls turned over for another nap after a look out of the window. Later, however, the sun broke through the mountain mists and burned away the clouds. Quick to take advantage of the change, the automobilists brought out their machines and when Governor Bachelder arrived on the noon train it was decided to form a parade of all the automobiles that had taken part in the climb. This was carried out, and twenty-one strong, they paraded about the Bretton Woods roads and then filed to Crawford's, where General W. A. Barron and C. H. Merrill, the managers, welcomed them cordially. All the automobiles were lined up at about 4 o'clock in front of the Mount Washington Hotel and were "biographed," together with several equestrians who happened to be near-by, showing that the Bretton Woods horses do not fear automobiles.

At a meeting held this afternoon at the Mount Washington, it was decided to transfer Saturday's endurance run to Thursday and to-morrow morning a 7 o'clock start will be made by twenty-five cars. The route will cover about 65 miles and lies through Littleton, Franconia, Bethlehem and Profile House. Friday's event will be run as scheduled, the 95 miles circuit of the mountains.

MOUNTAIN TOUR ON THURSDAY.

LITTLETON, N. H., July 14.—Twenty automobiles took part in the mountain tour to-day. The cars that started from Mount Washington were of all sizes, from the little runabout to a 40-horsepower gasoline touring car. The route followed took the tourists through Whitefield, Lancaster, Littleton, Franconia and Bethlehem. Governor Bachelder and ex-Governor Jordan, of New Hampshire, joined the run at Whitefield.

The only accident of this day's run was the breaking of a wheel on Harry Fosdick's automobile, caused by collision with a rock. A new wheel was secured and put on, however, and Fosdick overtook the others on the road. No one was hurt. The distance from Whitefield to Lancaster is about 10 miles, and was negotiated in 50 minutes. From Lancaster to Littleton, 21 miles, the run occupied slightly more than one hour. All arrived safely.

FINAL DAY OF TOURNEY.

MOUNT WASHINGTON, July 15.—The last day of the Mount Washington tour was spent in making a 95-mile run among the

northern hills of the Presidential range, through the Crawford Notch and the towns of Jefferson, Randolph, Jackson, Intervale and North Conway. Eighteen cars made the start this morning, and the run was made at an average speed of about 15 miles an hour.

A gear in the automobile of L. J. Phelps, of Boston, unfortunately broke, disabling the car, but Otto Nestman threw him a line and towed him ten miles to Jackson, where the Phelps party was left.

The following were awarded gold medals for meritorious performances in the touring events: H. W. Alden, gasoline Columbia, 12-hp.; James L. Breese, Mercedes, 40-hp.; Arthur Gardiner, Rambler, 16-hp.; Webb Jay, White, 10-hp.; George H. Lowe, White, 10-hp.; Frank Nutt, Haynes-Apperson, 12-hp.; John G. Prouty, Winton, 20-hp.; Percy Pierce, Pierce, 24-hp.; Harlan W. Whipple, Mercedes, 40-hp.; Harry Fos-

The Good Roads meeting, which was to have been held on Saturday, July 16, was called off. This was the only "event" in the entire series that was not carried out according to arrangements made.

TOLLS ON AUTOS ILLEGAL.

Special Correspondence.

MILWAUKEE, July 16.—Because automobiles were not in use when the toll road charters were granted, automobile owners and drivers cannot be required to pay toll over turnpikes in this county that are under private ownership. This fact was brought out at a meeting last week of the county board committee on highways and bridges.

The charter of the Fond du Lac toll road, which was granted in 1868, granted permission to tax horses at a specified rate per head, and later similar provisions were made in charters granted to cover the



PARADE OF CARS AT THE PROFILE HOUSE NEAR FRANCONIA NOTCH, WHITE MOUNTAINS.

dick, Winton, 20-hp.; C. C. Hildebrand, Stevens-Duryea, 7-hp.; B. A. La Mont, Cadillac, 8-hp.; F. E. Stanley, Stanley, 6-hp.; L. R. Speare, Winton, 20-hp.; Mrs. L. R. Speare, Winton, 20-hp.; Alexander Winton, Winton, 24-hp.

A silver medal was awarded L. J. Phelps, Phelps, 20-hp., for one day's prospect record.

The official report of the Chronograph Club, of Boston, which had in charge the timing of the "Climb to the Clouds," shows that the following corrections should be made in the list of times as originally published:

Event No. 2—Price \$650 to \$1,000.		
Make.	Driver.	Time.
Olds.....	Benj. Smith, 7-hp.	1:06:00 4-5
Event No. 4—Price \$1,800 to \$2,000.		
Phelps.....	L. J. Phelps, 20-hp.	:56:15 2-5
Event No. 5—Price \$3,000 to \$6,000.		
Winton....	Alex. Winton.	1:33:02 3-5

Whitefish Bay and several other toll roads radiating from this city. With the advent of bicycles and automobiles the holders of the charters have taken for granted their right to exact toll from the users of these vehicles, but it is said to be clear that in the event of a protest the motorist would come off victorious. The county supervisors claim that the toll, as applied to bicycles and automobiles, is illegal, but the automobile owners are paying it and making no protest because the tax is used to improve the roads. Automobiles are subjected in this county to a tax of ten cents for a single seated vehicle and fifteen cents for one with two or more seats.

TRUSTEES of the Campbell County Turnpike Company have raised the toll on automobiles from 50 cents to \$2 for the round trip between Alexandria and Newport, O.

Hints to Touring Car Purchasers—III.*

Proper Care and Adjustment of a Car Upon Its Delivery from the Builder's Factory, with Explanatory Photographs.

By JOSEPH TRACY.

WE are now ready to consider starting the motor and taking the car out for a trial spin. If one has not previously driven the same kind of car, it is advisable to push the machine out of doors rather than run it out under its own power.

PROPER WAY OF STARTING.

A little suggestion as to the proper way to hold the starting crank: Never push down, as shown in Fig. 11, when attempting to start the motor, because a "back-



FIG. 11.—WRONG WAY TO CRANK.

kick" when pushing down will generally result in a broken or sprained arm. The correct way is shown in Fig. 12. Partly grasp the crank with the four fingers of the right or left hand, according to the direction the engine turns, so that the crank lays across them midway between the palm and finger tips, and then pull up. If the motor should "kick," the crank will be merely pulled or slid from the fingers, and will not hurt in the least. Stand in such a position that in case of a back-kick the free end of the starting crank will not strike the legs.

Before starting the motor, the throttle should be set so as to prevent the motor from running too fast and the hand brake put on rather tight. This in most cases disengages the clutch, and so allows the low gear to be engaged subsequently without rasping or making noise. Assuming that the clutch is properly fitted and adjusted, the proper position for the change speed lever is in the neutral notch. After starting the motor the driver can now take his seat at the wheel, grasping this with one hand—which hand depends upon the side the car is steered from—and the change

speed lever with the other. A good position is that shown in Fig. 13, but this is largely a matter of individual preference, and after a little practice the driver can select the method which comes "most natural" to him. Next place the feet securely on the pedals, as shown in Fig. 14, which represents a type of car in which the pedals are operated by a downward pressure. Now move the change speed lever into the first gear notch and then gently release the hand brake, thus causing the clutch spring pressure to come on the clutch pedal. By easing up on this pedal, the clutch will engage and the car will move forward. Don't be in too great a hurry to get into the second speed—not until you are well able to handle the car on the low speed.

PRACTICE STEERING THE CAR.

Find how nearly in a straight line you can drive, also how well you can get around a right-angled corner. Practice stopping with the front wheels touching a mark across the surface of the road, and see how near to this the wheels can be brought without overrunning. Now try running backward slowly. It is hardly necessary to say that the driver must be able to see over the back of the machine to practice this evolution. If possible select a good wide, level road, free from traffic for these trials.

POINTS ON SPEED CHANGING.

The question of changing gears now calls for consideration. Recollect, always that when changing from a lower to a higher speed the engine should be "accelerated" before the change is made. It follows as a natural consequence that the reserve of engine power at any given car speed should be sufficient to cause the motor to race at the time a change of speed from a lower to a higher rate is attempted. When changing from a higher to a lower speed there is manifestly no necessity for engine acceleration.

When you are able to handle the car well on the low gear, you may safely change into the next. Before changing gear the motor should be accelerated a little, the clutch withdrawn, and the gear lever moved smartly to the second speed notch. Be careful, however, not to get past the notch. If there is a "latch" on the change speed lever, it will, of course, have to be first raised, before the lever can be moved. It will facilitate changing gear to raise the latch and then move the lever until the latch clears the notch, when it may be released. The latch will then be in contact with the quadrant and ready to drop into the second speed notch when the lever reaches that position. The latch by drop-

ping into the notch, tells when the gears are in mesh. This method of changing is much easier than when one lifts the latch and holds it clear of the quadrant until the gears are *thought* to be meshed and then releases the latch, which may not find its notch until the lever is moved back and forth several times.

GRIDIRON TYPE OF QUADRANT.

In cars having the "gridiron" or Mercedes type of quadrant, care must be taken that the gear change lever is not moved into the wrong slot. In going "up," if a gear is skipped, say from first to third, it will not do so much damage as if a gear is skipped in changing from a high speed to a low, say, from fourth to second. In the latter case a great strain is imposed on the clutch and transmission, as the momentum of the car is utilized in turning the motor over at an extremely high speed, and may result in breaking a gear or twisting a shaft.

The beginner should practice changing gear until this can be accomplished without looking at the quadrant, as this takes his attention from the road in front. This is not so likely to cause a mishap in a car fitted with change speed lever on the steering post, as looking at the lever in this form of control does not necessitate a

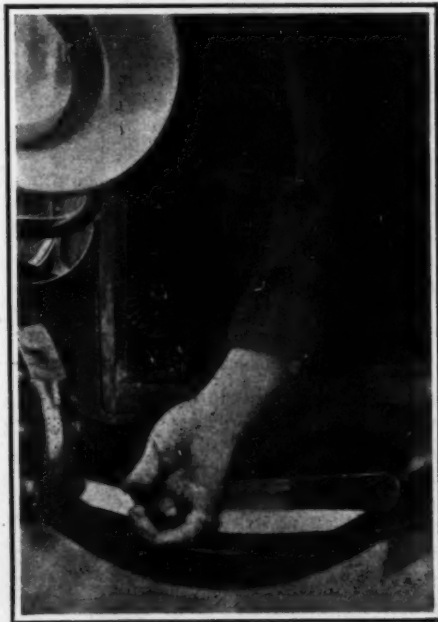


FIG. 12.—RIGHT WAY TO CRANK.

change of position of the head, but simply a momentary glance. On cars equipped with the usual side lever, changing gear "without looking" is more difficult on those having gridiron quadrants than on those in which the change speed lever has no lateral movement.

MOTOR WILL SLOW DOWN.

It is well to bear in mind that when changing from a low gear to a higher one, the motor will run slower after the gear has been changed. For this reason when you unclutch to change to a higher gear,

*Continued from page 37, issue of July 9, 1904.



FIG. 13.—POSITION OF HANDS.

the clutch shaft and gear wheels mounted on it must be slowed down before the gears can be meshed. As the natural tendency of revolving bodies is to come to rest, or to slow down, this explains why it is usually easier to change from a low to a high than the contrary. When a change is made from a high to a low, the clutch shaft will turn faster after the change is effected than before. Consequently, in order to mesh under these conditions the clutch shaft has to be accelerated. Usually the most convenient way to do this is to bring the slow moving gear into forcible contact with the fast moving one, resulting in much rasping of gears.

USES OF THE PEDALS.

In pressing down the clutch pedal before changing, be careful not to press the brake pedal at the same time. Some beginners find it difficult to press down one foot without pressing down the other also. When driving make it a practice to hold your feet on the pedals. This will feel uncomfortable at first, but after awhile you will feel uncomfortable unless your feet are on the pedals. That is the proper way to feel. If the driver keeps his feet on the floor, and is called on suddenly to stop the car, he cannot do so as quickly as if he already had his feet on the pedals.

Be careful when resting the feet on the pedals that the weight of the feet does not partially withdraw the clutch and so cause it to slip and burn the leather. Always allow the clutch to engage gradually and so prevent undue strains on the transmission.

We will now assume that the driver is familiar with his car and can steer it easily. The next thing in order is a short trip, say ten or fifteen miles. Before starting out, fill the various receptacles with water, gasoline and cylinder oil. See that the tires are all pumped tight, that the brakes act

properly, and that the full equipment of tools and spare parts is aboard.

TOOLS AND SPARE PARTS.

Tool equipment should include spark plug wrenches, large and small screw drivers, gas and cutting pliers, large and small file, hammer, medium size pin punch, large and small cold chisel, spanners to fit the most important nuts on the car, large and small adjustable wrenches, hack saw and small hand vise, oil syringe, tire levers and jack and tire pump.

The extra parts and supplies should include funnels for water and gasoline, spare inner tubes, which should be carried in canvas bags, cement and patches for repair on tires, a complete set of parts for tire valves, pieces of rawhide to repair cuts in tire shoes, or envelopes, French chalk and canvas patches. Also some nuts and bolts, soft iron and brass wire, assorted split pins, small wire cable, extra chain links, a piece of small rope and cans of oil and grease.

Motor parts should include spark plugs, inlet and exhaust valves, springs and cotter pins and collars for the valves, springs for the governor, gaskets for the various pipe connections, the spark plugs, and the valve chamber caps, pieces of rubber hose for water pipe connections, clips for the hose, extra tremblers and contact screws and brushes for the distributor. Some lengths of primary or battery wire and plug wire, and insulating tape of the best kind will be useful additions to equipment.

Many cars are fitted with a volt or ammeter and if not it would be well to have one permanently secured to the dashboard and connected by means of a switch or push button with the batteries.

If the car has a make and break system of ignition the various springs, rods, and tappets, which may break or wear should be taken along, also some of the insulated electrodes between which and the tappets the spark occurs.

While the foregoing may look like a formidable list it is actually not extensive or expensive. It may be necessary to use any one of the articles mentioned on the

initial ride, but it should not be forgotten that a breakdown on a short ride calls for the same repair equipment as a breakdown on a long tour—having reference in each case to roadside repairs and readjustments.

ATTENTION TO THE SPRINGS.

If the car is to run over rough roads it is a good plan to fit small rubber blocks on the middle of the springs to prevent the frame from striking the springs or axles. Another good plan is to fasten straps around the axles, and frame, leaving sufficient slack to allow free vertical movement of the body. These straps are useful also in preventing the top spring leaves from being fractured. Such fractures are caused by the weight of the wheels and axle hanging from the top leaves only. This happens when the car strikes a rut or stone. The frame and body are driven upward by the recoil of the springs, while the wheels and axle are driven in the opposite direction. A bad jolt may raise the front wheels off the ground. In this case the momentum of the wheels and axle will be borne entirely by the top leaves of the front spring, as these are not fastened to the other leaves at any point except in the middle, where the spring is clipped to the axle. Clips which embrace the top and the second and third leaves are often used instead of straps.

(To be continued.)

BEXHILL AUTO CARNIVAL IN AUGUST.

Arrangements are being made at Bexhill-on-Sea, England, for a most interesting series of sporting and social events for August 1, 2 and 3, with Earl de la Warr and Mr. V. Stratton as principal promoters. According to the scheme at present made known, a parade of all the cars foregathered will take place in the morning, to be followed by the preliminary heats of the races in the afternoon. The second day will be entirely given up to the semi-finals and finals of the speed contests, while the third day has quite a Continental touch about it, more remindful of the Riviera at its gayest than staid and sober England with its battle of flowers, gymkhana and torchlight procession, with prizes for all the best decorated and best illuminated cars. If only the weather is fine, Bexhill should be the center for a large number of motorists. The races take place on the Parade, where the meeting was held two years ago, and are open only to touring cars.

An automobile road is being constructed from the McCloud River, Cal., to a point on the line of the Southern Pacific Railroad in the Sacramento River canyon. The road will proceed from McCloud River down Squaw Creek. The last part of the road is a horse trail, which will be widened and rendered suitable for vehicles. Several rich San Francisco men who have summer houses on the McCloud River will operate an automobile line over the highway, which they intend to put into fine condition.



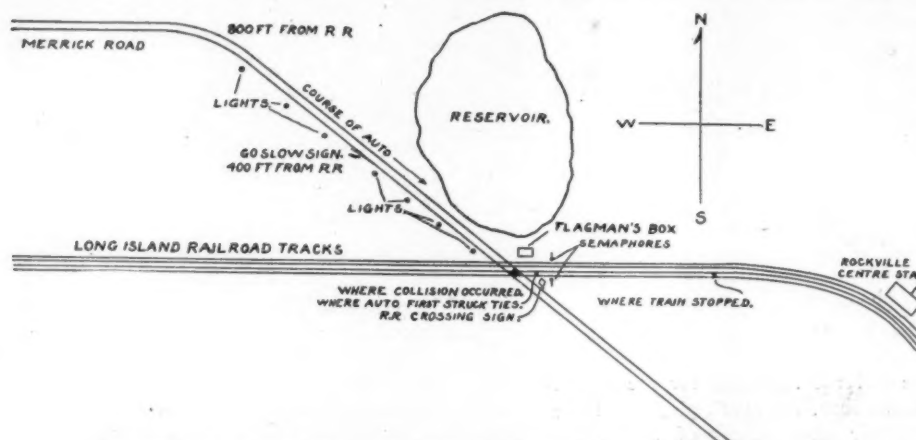
FIG. 14.—POSITION OF FEET ON PEDALS.

Long Island R. R. Crossing Fatality.

Automobilists Killed at Rockville Centre—Reckless Driving, Brakes out of Order, and No Gate, Contributory Causes.

A COMBINATION of reckless driving, a machine not in proper running condition, and a grade crossing without gates, was apparently responsible for the death of three automobilists on the Long Island Railroad at Rockville Centre

slight grade and was just jolting across the east-bound track when the pilot of the engine caught it almost squarely in the middle. One of the occupants was tossed in the air and was picked up fifty feet away, clear of the tracks. The automobile



SKETCH MAP OF THE LOCALITY WHERE THE FATAL ACCIDENT OCCURRED.

on Wednesday evening, July 13. The three men were Frank Correll, a real estate dealer of Brooklyn, James Snyder, East Durham, N. Y., and Genet S. Jewell, Brooklyn. As there are no survivors of the accident to tell exactly what took place all that is known has been gathered from eye-witnesses and from a technical examination of the car and crossing.

In the accompanying sketch plan the details of the road conditions are plainly shown. The car, a Searchmont, with the three men in it, was going at a high rate of speed along the well-known Merrick road just west of Rockville Centre. It was about 9 o'clock at night and as the moon was not shining the road was dark except for the light cast by a number of incandescent lamps strung along at intervals on the approach to the crossing.

There is a sharp bend in the road about 800 feet from the tracks. Assuming that the car was traveling 20 miles an hour only about 30 seconds would elapse from the time the crossing was sighted until the car was on the tracks, provided it was not slowed down.

S. E. Van Nostrand, the railroad watchman at the crossing, says that shortly before the accident an east-bound passenger train was approaching and he gave the engineer a clear signal with his lantern. Hardly had he done this when he saw an automobile approaching the crossing at high speed. Standing in the middle of the roadway, he swung his lantern to warn the occupants of the machine which continued on its course with no apparent diminution of speed. He also shouted at the top of his voice in the hope of averting a collision, but the automobile rushed on, up the

was carried along on the pilot for 500 feet or more, scraping the ties at intervals, and when the train finally was brought to a standstill the remaining two men in the car were picked out of the wreck, crushed, mangled and torn almost beyond recognition. The man thrown out by the impact was found to be still living, but he expired about an hour later without having regained consciousness.

Mr. Correll, who was driving, was the owner of the automobile, which was a



LOOKING TOWARD CROSSING IN DIRECTION AUTOMOBILE WAS TRAVELING.

two-cylinder 16-horsepower tonneau. It is said that he was desirous of selling it and that Mr. Snyder was the prospective purchaser. The fatal trip was probably made to demonstrate the running of the machine, and Mr. Jewell went along as a passenger. The party started in the automobile from Mr. Correll's office in Brooklyn. Mr. Correll had owned three automobiles before the ill-fated Searchmont, and, though a good

driver, was, it is said, somewhat inclined to take chances. This would seem to be borne out by the manner in which the crossing was approached, especially when the physical conditions existing at that point are taken into consideration.

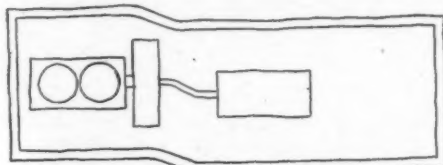
For two or three miles west of the Rockville Centre crossing the Merrick Road, which is famous for its fine condition and a favorite highway for automobiling, runs parallel to the railroad track. Vehicles on the road can be distinctly seen from trains, and trains are plainly visible from the road, except at occasional intervals, where trees intervene. Then the road turns at an obtuse angle, the turn coming out on the straight road with the crossing in full view just 800 feet from the tracks, as shown in the sketch. In this 800 feet there are seven telegraph poles carrying incandescent electric lights on brackets projecting about 13 feet above the road. The road is 23 feet wide where it crosses the tracks.

A conspicuous sign to slow down stands by the road at a distance of about 400 feet from the tracks, and calls for a reduction of speed to 8 miles an hour. On the south side of the tracks and the east side of the road is one of the familiar diamond-shaped railroad crossing signs, plainly visible from the turn in the road; but this is the only signal with which the crossing is equipped, there being no bell or other sound warning and no gate. The actual crossing is somewhat high, and the road rises as it approaches the track.

Mr. Correll was very familiar with the road, and witnesses state that he and his companions had their heads down as the swiftly moving vehicle rushed toward the tracks. The opinion is expressed that there was a race between the automobile and the train for the crossing.

A careful examination of the wrecked automobile indicates that the machine was apparently moving very slowly when struck by the locomotive. The point of impact is on the frame on the driver's, or right hand, side, about eight or ten inches back of the dash board. The wood sill was broken and the steel fitch-plate bent badly at this point. The cross member at the back end of the frame was out of place at the cor-

ners. Both side members of the frame remained approximately parallel, from the point of collision to the back ends. Both main and sub-frames rearward from the point of impact were pushed out of alignment with the forward part of the frames—see diagram. The front springs were knocked to pieces and their hangers bent

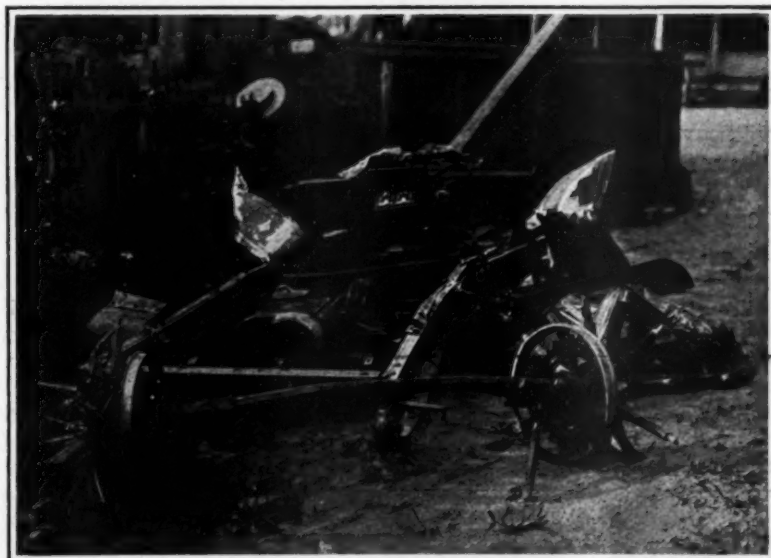


FRAME AND CLUTCH SHAFT BENT BY COLLISION.

and twisted. The rear springs sustained almost no damage, although the axle was wrenched off them completely. The front axle was bent, but the rear axle was not. The front wheels were not broken, the tires however, were burst. The rear wheels were

brake—which acts on the differential shaft—were covered with oil. This would indicate that this brake was not in good working order. One of the side brake drums on the back wheels was worn bright and smooth—the other seemed as if the band did not grip it when this brake was set. Judging from the appearance of the car after the accident it seems pretty certain that the right hand rear wheel brake was the only one on the car which was in proper working order. From this it will be seen that it would be impossible to slow down the car suddenly if traveling at high speed.

Taking into consideration the lay out of the crossing, and the condition of the wrecked car, it seems reasonable to suppose that the machine was traveling fast as it approached the tracks, and that when the driver saw the train he tried to stop. Finding he could not do so, owing to defective brakes, he next decided to go on, thinking that he could cross in time to avoid a collision. The clutch may have been thrown



PHOTOGRAPH OF THE CAR AS IT LIES IN NEIGHBORING GARAGE.

badly smashed, only the broken stubs of the spokes remaining in the hubs. The motor seemed unharmed, with the exception of the flywheel, which was broken off at the hub, leaving the latter on the crank-shaft. The shock which broke off the flywheel, without doubt, also sprung the crank-shaft. The clutch cone was broken off its shaft and the latter bent very badly, close to the square sliding joint. The gear box was cracked at the right hand back "lug," but was apparently otherwise uninjured.

It is impossible to say in what condition the gears were or in what speed the car was at the time of the accident, as access to the interior of the gear box could not be had when this investigation was made. The differential shaft was not bent, but was very much out of line with the sprocket shafts. Tanks, both water and gasoline, were off, as was the radiator.

Both the drum and band on the foot

in so suddenly as to stop the motor and the car, the latter on the track in front of the engine.

After the accident the car was removed to a nearby garage where it was photographed.

An inquest into the accident was commenced on July 19 at Lynbrook, L. I., before Acting Coroner Justice A. B. Wallace. The examination of four witnesses developed no new facts.

Evidently the danger of this crossing was recognized long ago, for documents were produced at the inquest showing that the Long Island Railroad Company had, in May, 1900, declared that the grade crossing was unsafe and should be made an overhead crossing and petitioned the Railroad Commissioners for authority to carry this out. Accordingly two of the commissioners held hearings; but owing to the opposition of town officials and local property owners the matter was dropped.

Exchange and Record of Ideas.

During a recent trip to one of the automobile factories, the writer had a chance to see something of a carefully designed and well-handled card system of communication between the various departments of the whole establishment. It is in reality a simple arrangement, making a ready and convenient means of answering questions constantly arising in the various branches of any large business organization—particularly where it is not so important to have immediate replies as to ask the question or make the memorandum while the matter is fresh in mind.

In the system to which reference is made, one side of the card is blank, while the other bears a double column of titles (or their abbreviations) belonging to the persons most likely to use this kind of communication. One column is headed "From," and the other, "To." A line drawn obliquely across the space between—that is from the one asking the question to the one addressed—serves the purposes of both address and signature. It may happen that in seeking certain information a card passes through several hands, in which case the connecting lines between the names in the two columns will sometimes cross each other; but in all cases they will show the routes the cards have traveled. The system is one of "Memoranda in motion," and it will be found sufficiently elastic to take care of most detail matters.

The use of these correspondence cards presupposes an arrangement of pigeon-holes in which several classifications may be kept ready for quick and easy examination. Each officer or department head should be provided also with suitable means for handling and filing such cards as belong to his department. A miniature post-office and messenger system, by which inter-communication between all branches of the establishment is facilitated, will add to the completeness and usefulness of the plan.

Some very careful and efficient work, both in the exchange of memoranda and in temporary records making, can be done with a card system of correspondence, in any establishment so large that the managers do not meet their department heads several times a day, or where the latter cannot readily see each other as often as any matter of importance to two or more comes up. A telephone system "connecting all departments" is good in its way, but the party called up by 'phone may not be in, or if in, unable to respond at once, and at the best there is no time to deliberate over, and no record kept of the matter. A card system goes to a man's desk, to be picked up at a convenient moment; and it may either be attended to at once or laid aside for further consideration. When it does get back to the other party, it represents something to be relied upon, whether a simple memorandum or an important inquiry. Such a device may save many an expensive error.

Motive Power for Automobiles.*

By PROF. R. C. CARPENTER.

THE development in the automobile art has been more rapid in this country than its most sanguine disciples could have predicted five years ago. The development is the result of the application of the best mechanical and engineering training of the present age and serves to illustrate how much can be accomplished by an active people in an exceedingly short period of time when the sister mechanical arts are fully developed and able workmen and good tools are to be obtained. The development has been carried to great perfection, not only along the line of power development, but also as regards the construction and development of the vehicle. The motive power at present used is principally derived from steam or gas or from some stored force, as, for instance, electricity; of these three well known methods of propulsion, the steam engine and the gas engine are to be alone considered as prime movers or devices for generating mechanical power directly from the fuel.

THE ELECTRIC AUTOMOBILE.

Electricity as a power represents the force generated by the mechanical motion produced by some prime mover such as the steam engine, the gas engine, the water wheel or the wind mill; it is not at present produced to any practical extent directly from either the combustion of fuel or by chemical reactions. Electricity has been used for a long time for moving vehicles, in two ways; in the first way the electricity is stored in a storage battery which is moved with the vehicle; in the other, the electricity is supplied as required by connecting wires leading to the generator or other source of energy; the electrical current drawn either from the battery or generator is retransformed into mechanical energy by an electrical motor in both cases.

The storage battery which is employed in nearly all of the electrical carriages of the present time is very heavy, being composed largely of lead. The so-called storage process is principally a chemical action during which chemical products are formed in one of the two battery plates; during the discharge of the battery and at the time it is giving off current, the chemical products formed during the charging process are dissociated and reconvert the energy of chemical combination into that of electricity, which can be utilized in the electric motor for the purpose of locomotion.

In proportion to the energy which can be supplied, the storage battery is extremely heavy, consequently aside from any objections which might arise from the fact that the electric vehicle is not provided with primary means of locomotion,

the distance which the vehicle could go without charging, or, in other words, its radius of action, must be necessarily limited.

The storage battery is of necessity imperfect and a certain percentage of the charging current is lost in overcoming useless resistances or dissipated without useful results, so that the efficiency is necessarily less than 100 per cent. Practically, it is not likely to be over 75 per cent. When it is considered that the electricity which is used for charging a battery must be purchased at commercial prices and at prices which would probably give considerable profit to the owners of large electric plants, it would follow that the commercial efficiency of the electric vehicle must always be low and the corresponding expense of operating rather high; whether it is more expensive or not than other forms of energy available depends upon the conditions surrounding the production of power in other ways. As a rule, great economy in the generation of power is hardly to be expected for small engines used under the conditions of automobile locomotion. The electric carriage enjoys the distinction now of being the easiest to operate and control, the most nearly noiseless in operation and the most cleanly in use, and it is not likely to be deprived of these distinctions.

THE STEAM CARRIAGE.

The steam engine has advantages of its own as a motive power for propelling automobiles which render it extremely desirable under many conditions. The motion of the piston being produced by the direct application of the boiler pressure, gives a strong starting force and a powerful turning effort which is of great advantage when the vehicle is first put in motion or when the vehicle is employed to overcome grades or to exert great tractive effort at low speeds. The steam engine with its attached steam boiler and furnace constitute on the whole a complex organism and no little skill is required to properly operate both the boiler and the engine, to see that it has a proper supply of water and fuel and in addition give attention to the guiding and controlling of the vehicle. These difficulties have in large measure been overcome by some recent improvements in the steam boiler which are of such a nature as to practically render it automatic, and thus relieve the operator from many of the troubles which were incident to the use of the ordinary boiler and engine.

The steam engine can be considered as a machine for transforming the latent power stored in the fuel employed into work. Reckoned from such a standpoint it is very inefficient for the reason that only a small percentage of the heat which is retained

from the combustion of the fuel is converted into mechanical work. Thus, as an illustration, a pound of gasoline by its perfect combustion would give off heat sufficient to raise about 20,000 pounds of water one degree, or, in other words, would give off 20,000 thermal units; each thermal unit possesses the same amount of energy as would be developed in lifting a weight of 778 pounds one foot. From this it would appear that if a pound of gasoline were consumed in one hour of time and its heat were all converted into mechanical energy, it would develop by its combustion about 7 horsepower. Practically our best results require an amount of fuel from 10 to 15 times that theoretically possible.

The practical efficiency of a steam engine in converting heat into useful work is found between 3 per cent. for the ordinary and usual cases, and rising to about 10 per cent. in the best examples of modern practice in very large units and when multiple cylinder engines are used.

Despite the inefficiency of the steam engine as a means of converting the energy of fuel into work, it is never likely to be superseded for certain classes of work required of automobiles. It would not be at all surprising if it should again attain a great degree of popularity because of the advantages it possesses in the way of reliability, easy and ready starting, quick and accurate control, as well as in the absence of noise due to its operation.

ROTARY STEAM ENGINE.

There has been in connection with the development of the automobile a temptation to use a rotary steam engine, but such a type of motor has met with little or no success. The rotary engine would seem from the character of its motion to be particularly well adapted for automobile use, and such is doubtless the case if an engine of that type could be built which would be economical in its use of steam and durable in character.

The rotary engine, which we may define as one in which continuous rotary motion is produced by the pressure of steam, is apparently a simple mechanical construction admirably adapted for producing the rotary motion needed in automobiles. Inventions almost numberless have been made with the idea of perfecting this motor and of overcoming its defects, and while many of these inventions have seemed in the beginning promising and indicating economical results, yet a continued use has in every case demonstrated the failure of the attempt. The difficulties which must be overcome in the rotary engine are largely mechanical ones, and at the present time they are generally believed impossible of solution.

In the ordinary steam engine a piston is made to move backward and forward in the steam cylinder by pressure applied alternately on each side, and little or no difficulty has been experienced in providing means for preventing a leak of steam past

*From a paper read before the American Motor League in New York.

the piston without at the same time producing a pressure which would cause an inordinate amount of friction. With the rotary engine it has been different. In that construction the piston must swing on a pivot in a circular chamber and it has been found impossible to devise a piston or rotating body that would not permit steam to leak past it on the one hand, or did not take up a large portion of the power of the engine on the other hand. It has been found possible to design rotary engines that would use steam expansively and that appeared in the early trials to promise good results for the future, but a continued use of such engines has always proved disappointing and at the present time it seems a safe statement to make that *a rotary steam engine which will operate economically and successfully is practically an impossibility.* The man who wastes his energy in this unpromising field is certain to accomplish little or nothing.

The steam turbine is not classed as a rotary steam engine in this discussion, since it is not operated by the direct pressure of the steam, although in its use the steam produces a rotary motion. The efficiency of the steam turbine, which is practically equal to that of the piston steam engine, is dependent very largely upon its high peripheral velocity of rotation which must approximate to one-half of the steam itself. It is of course possible that the motion of a steam turbine could be utilized for generating electricity and that on the other hand might be used to operate an electric motor on an automobile in such a manner as to give us fairly efficient results. It is not easy to see how the extremely rapid motion so necessary for efficient results in the steam turbine could otherwise be usefully applied to a steam or electric carriage.

THE GAS ENGINE AUTOMOBILE.

The gas engine at the present time is the most extensively used motor for automobile service. This form of engine is one in which the energy of the fuel is directly converted into work by explosion or combustion in the cylinder of the engine, and its heat efficiency is much higher than that which can possibly be obtained in the steam engine.

I have found by actual test of the motor employed in two well known forms of automobiles that under good conditions the efficiency realized is as high as 21 per cent. and that it very seldom falls below 12 per cent. This would mean that the same amount of fuel required for a steam engine would perform, if the steam engine efficiency be considered as 3 per cent., from 3 to 7 times as much work when used in a gas engine.

The gas engine at present employed is almost universally that designed and patented by Otto in 1875 and generally known as the four stroke cycle engine or to use the short and common expression, as the "four-cycle engine." The fuel used in the

engine is a mechanical gas or vapor formed by the intimate union of particles of air with particles of a liquid hydrocarbon. The fuel used for the vehicle is almost universally in this country a petroleum oil known as gasoline which easily vaporizes in contact with air. In practice it is mixed with air or vaporized by an attachment to the engine termed a vaporizer or carbureter.

In Europe methol alcohol is being employed to a greater or less extent, either pure or mixed with gasoline. The fuel actually used is not essentially different from that used in the steam carriages, but it is true that the open flame under a steam boiler might be able to burn a hydrocarbon liquid of a character which could not be vaporized, and could not be used in a gas engine and which could be purchased at a much lower price.

It seems entirely unnecessary to discuss the theory of the gas engine or the character of its cycle of operation, as most of the owners of automobiles have during the last few years been thoroughly and carefully educated in these respects.

It is to be noted that the gas engine almost universally employed in automobiles is required to make four strokes for each impulse on the piston or for each explosion; the result is a tendency for an irregular motion which can only be overcome practically either by the use of a large number of cylinders or else by the use of an extremely rapid motion of the engine as compared with that of the driven axle. The inconvenience of the four strokes to one cycle of operation has caused many attempts to substitute a motor which should have not to exceed two strokes per cycle of motion. Some of the engines of this character have been made practically valveless and arranged so that the discharge of the burned gases was caused only by the entrance of the fresh charge. In such a case while the actual operations of the four cycle engine were made to follow each other in the same sequence, they were made to come in two strokes instead of four.

THE COMPOUND STEAM ENGINE.

The use of the compound steam engine has resulted in a considerable saving in fuel due to the fact that the principal waste in the steam engine is caused by the condensation of steam as it first enters the cylinder at the beginning of each stroke. This condensation is much reduced by working the steam in succession in two cylinders for the reason that by so doing the temperature range of each cylinder is lessened with the consequent saving of steam by reducing the amount of condensation. It has been argued that a compound gas engine might also result in increased economy over the simple gas engine for the same reason, but since there is no condensation in the cylinder of gas engines and little loss due to cooling on entering the cylinder, the analogy does not

hold, and while this attempt has been made several times, it has so far as I can learn never produced beneficial results unless some other object than economy were sought.

The gas engine as it existed even four years ago was a machine difficult to operate, unreliable in its operation and uncertain as to when it would stop or go. It was also of large size as compared with the steam engine in proportion to the power developed. Since that time improvements have been almost marvelous. The gas engine as at present used in the automobile is reliable in its operation, it can be regulated for wide ranges of speed, and nearly all of the bad attributes have been eliminated. Unlike the steam engine, it must be put in motion before an explosion can take place and before any power can be developed. Unlike the steam engine, it cannot develop much torque or rotative power at slow speeds. These difficulties have been overcome in its application to automobile purposes by the use of gears and clutches which permit the engine to move at a speed higher than that of the carriage or to operate when the carriage is at rest.

At the present time the gas engine motor is the most economical and most convenient means of propulsion known, and in view of the general developments in the art of power engineering it does not seem probable nor possible that it is likely to be superseded by any other motive power to any great extent. On the contrary it is possible that still further advances will be made in the art relating to its use and that it will continue to be more and more the dominant and principal motive power used for automobiles.

MAYOR ROSE ADVISES LICENSING.

Special Correspondence.

MILWAUKEE, July 16.—Although an ordinance recently introduced in the Common Council providing for the numbering and licensing of automobiles was practically shelved by being referred to a committee, the fight has been revived in the council by a communication from Mayor Rose urging the council to take action toward the adoption of such an ordinance, and a resolution is now in the hands of the judiciary committee recommending the passage of an ordinance.

Considerable feeling has been aroused by the resumption of the movement to pass this measure, and the Milwaukee Automobile Club, it is announced, will take legal action to oppose any such ordinance which may pass the council. It is claimed that such an ordinance, unless it applies equally to all vehicles, whether self-propelling, drawn by horses or otherwise supplied with power, would be discriminating and therefore illegal. A special committee has been appointed by the club, with full power to act, to look after the matter.

Driving Eastward on the National Road.—II.*

Highways and Accommodations Through Southern Indiana, Ohio and Pennsylvania—Practical Pointers for A. A. A. Tourists.

Special Correspondence.

PITTSBURG, July 17.—Five hundred and three miles, most of it over a hilly country, was our record last week, when we arrived at Terre Haute, Ind. Since then we have come this far over the southern route, as mapped for the endurance run, and will probably make Philadelphia by Tuesday, the run across Pennsylvania, according to reports, being very smooth going.

From Terre Haute to Indianapolis is given on the A. A. A. map as being seventy-seven miles. The roads are in excellent condition and such fast time can be made that there will be no need of stopping at Putnamsville for luncheon, as designated on the schedule. Should a stop be made there, the chances of getting anything to eat are slim, as the town consists of a water tank, four houses and three barns—no stores, hotels or eating houses. We had planned to eat dinner at Putnamsville but it was out of the question, though we made up for it by stopping at the Cloypool House, Indianapolis, where we were well taken care of. Four or five hours should be sufficient for even the smaller cars to cover this stretch.

The Indiana roads are the best of any we have traversed. We found them good on the northern route and we find them just as smooth and hard on the southern route. It does not appear to be due to any especial effort on the part of the inhabitants but more to the general nature of the soil and level topography of the state. From Indianapolis to Richmond is seventy miles; with excellent accommodations for luncheon at Knightstown.

Ohio still adheres to toll roads, and every few miles we were held up and asked to produce our coin. Twenty-five cents was the usual tax and some days our toll bill would be two or three dollars. If the roads were really good, no man would object to paying the tolls cheerfully, but when you are asked to pay every few miles for the privilege of exercising your skill as a road driver, there is some excuse for kicking—we kicked.

"I don't see why you ask automobilists to pay toll," said one of our party, "for they are generally considered a benefit to the road."

"Well, we didn't use to charge 'mobiles but they scare the horses and the other people git mad, so we charge you fellows twenty-five cents now," replied the woman in charge of one of the Ohio gates.

"I suppose that gives us a license to frighten all the horses we encounter, now we have paid for the privilege, doesn't it?"

"Well, now you have paid your quarter I guess you can do pretty much as you please about scaring the horses, but they

are not as much afraid now as they were last year, for there has been lots of you fellows pass through this gate this summer, all going to the Fair, I suppose."

From the time we crossed the Indiana-Ohio state line we encountered "chuck holes," as they are termed by the inhabitants. These are little ditches running entirely across the road, built for draining, probably, but they are likely to result in broken springs unless one drives watchfully. Almost every car that passes over this route snaps one or more springs before realizing what kind of road construction he is up against. Thanks to our early experience, all four of our springs were strapped down until they only had about three inches play and no damage was done, although we struck hole after hole with great force.

After leaving Richmond, Ind., we found a much better route by bearing to the south and running through Dayton to Columbus, then following the regular route through Zanesville to Wheeling. At Zanesville we began to encounter hills—hills apparently with neither top nor bottom, which continued on through the Cumberland mountains to Pittsburg. Our car, an excellent hill climber, took most of these at high speed, the spark retarded, of course, but we had to make use of the low speed frequently, as some mountain, whose top was in the clouds, loomed before us.

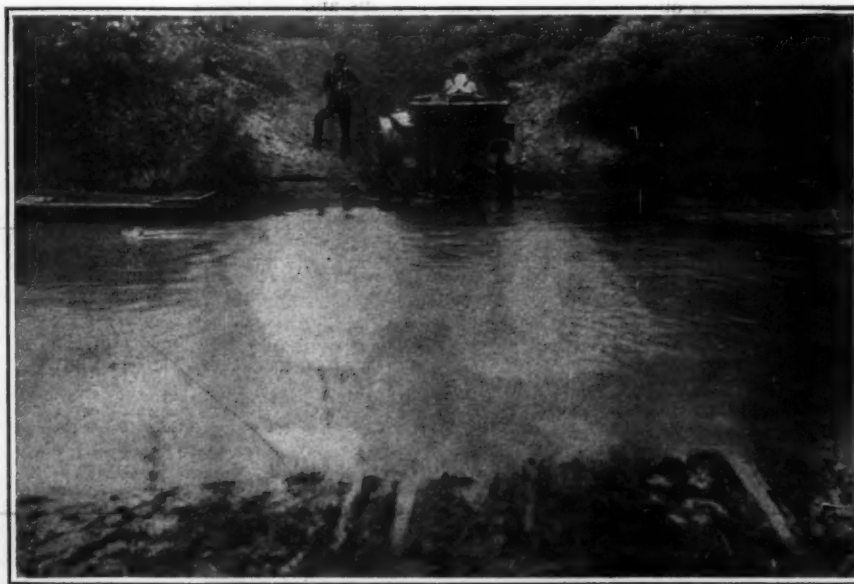
While descending one of these mountain roads we saw before us what we took for a large city in the valley below. With visions of a good night's lodging we hurried on only to find what we had taken for a city of at least 10,000 inhabitants was a

swarm of fire flies, whose radiance actually lighted up the valley until at a distance it would readily be taken for the numerous lights that mark a town. In telling at one of the Wheeling garages of our experience with the fire flies the proprietor said: "Yes, that valley is filled with fire flies. Some nights they shed so much light that I do not have to use my lamps at all, the road being visible for many feet ahead of my auto."

At Amsterdam, Ohio, one of the places designated as a noonday stop on the A. A. A. schedule, there is no hotel at which automobilists would care to stop, but the eighty miles between Zanesville and Columbus can easily be covered in half a day and, providing the start is made early enough in the morning, Columbus will be reached in ample time for luncheon. Cambridge, the noon stop between Zanesville and Wheeling, is a pretty little town at which excellent hotel accommodations can be obtained.

From Wheeling to Pittsburg is eighty-two miles, and the hardest climb on the trip. It is up or down steep mountains all the time, with many sharp curves that will keep the operator wide awake for the entire distance. Washington is the noonday stopping place, and while the hotel fare is good, tourists will do well to keep an eye on their belongings. We stopped there for the night and although we paid the liveryman \$1 for looking after the safety of our automobile and its contents, some one went through our hampers and stole such articles as they took a fancy to, including our loaded but unused revolver. We kicked—we are always doing that—but it did no good, the proprietor saying he was not responsible, and that he had only agreed to furnish a roof over our machine—as if rain could damage the *Pathfinder* at this stage of the game.

Just as we left Wheeling we were held-



SAFELY ACROSS THE LITTLE WABASH FORD.—See account in last week's issue.

* Continued from Page 65, issue of July 16, 1904.

up by a girl—and such a pretty girl. It was not necessary to send a solid shot across the bows of our craft, for the man at the wheel unconsciously slowed down when he first saw her. Before we had fairly stopped she came forward, and placing a hand on the steering wheel said: "I hope you gentlemen will pardon me, but I have just got a telegram from my sister saying that she is coming to Wheeling to see us and she is driving an iron grey horse and I think it is afraid of automobiles. Now, won't you please go back and wait until she comes and then you can go on again." We wanted to oblige, but with Pittsburg as an objective point, a delay of two or three hours would be a serious setback, and promising to use the utmost caution when we saw the iron grey, we once more headed eastward.

A stretch of eight miles of good macadam road brought us into Pittsburg in good spirits, although for several miles before we had reached the macadam we encoun-

that breaks the springs and not the going down.

Look well to your tires and pull out all tacks, nails and other things that have stuck in the outer shoes at every stopping place (we are yet on our first set of tires and haven't had a puncture).

Keep oil in your lamps and plenty of carbide on hand at all times, for you never know how soon you will have to use them.

Watch your oilers as a cat watches a mouse, for the oil you purchase along the road varies and necessitates careful watching and adjustment.

Carry an extra chain and extra links and blocks.

Have your tool-box equipment complete.

Keep your tonneau door shut and locked at all times.

Carry 100 feet of rope and two good single blocks.

Carry chain or rope to be wound around your tires on slippery roads.

When inquiring the road to a town, ask



GOOD GOING ON A SECTION OF THE NATIONAL TURNPIKE IN SOUTHERN INDIANA.

tered a stone hill that bore a striking resemblance to the Giant's Causeway as pictured in old geographies. It was bounce, bounce, bounce, as our little 28-inch wheels came down the steps, for the highway resembled a flight of stairs more than it did a road.

As our next article will not appear in print until after the St. Louis tour has started from the eastern cities, a few suggestions might be appreciated by those taking in the first two days of the big run. The writer was as green a novice as ever sat behind a steering wheel when he left New York City on May 18, with a sign on either side of the car reading: "New York to St. Louis," but nine weeks in an automobile, traveling over country roads and city streets, will give even a novice a few ideas, and here are some points that we have learned:

Keep an auxiliary gasoline tank somewhere about your machine, containing at least two gallons of gasoline.

Strap your springs down until they only have about three or four inches play, and remember it is the jumping up of the body

an automobilist, a bicyclist or a liveryman—not a farmer or hotel keeper.

Beware of speed ordinances in country towns and the ever watchful constable who gets a fee for every arrest.

Do not give up if you strike mud, no matter how deep. It is the courage and persistency of the tourist that takes a machine through and not the rated horsepower and cost of the car.

Lastly, if you want a two weeks' outing, an outing that will cause you to forget that you have a business and will bring the tan and freckles back to your face and hands as did a summer in the hayfield when you were a boy, take in this proposed St. Louis tour; start with the "bunch" and keep with it across New York, Pennsylvania, Ohio, Indiana, and Illinois to the Mississippi River and cross it into the world's fair city. The "Pathfinder" has made the trip once and will start on Tuesday morning with the New Yorkers, going across the 42nd street ferry, through New Jersey, up the Hudson to Kingston and across the Catskill mountains, with St. Louis once more its objective point.

THOUSAND-MILE NON-STOP.

Charles Wridgway, New York, made a second attempt to run a 24-horsepower Peerless touring car 1,000 miles without stopping the motor and again was forced to capitulate this time, because his carbureter became clogged with a bit of waste.

The start from New York was made early Tuesday morning, July 12, and the New York-Boston route followed. On returning to New York on the first round trip it was necessary to replace the radiator, which was badly damaged, with a new one taken from a stock car. This was done successfully, the motor running all the time, and the car was again started for Boston only forty-five minutes behind schedule time. After running 650 miles the carbureter began to work badly and finally failed entirely, stopping the motor. The clogging was attributed to the fact that gasoline had to be poured into the tank without straining the straining funnel having been lost. After removing the obstruction Mr. Wridgway continued the run, finishing 1,040 miles in a total elapsed time of 66 hours 45 minutes. He was at the wheel nearly the whole of that time himself, and was pretty thoroughly exhausted at the finish.

AUTO BOAT BUILDERS ORGANIZED.

THE recently organized National Association of Engine and Boat Manufacturers held a meeting at the Hotel Manhattan, New York City, on July 15, when a number of matters were discussed, including the National show. A committee of two was appointed to consider this matter and report at the next meeting of the association. A resolution was adopted thanking E. W. Graef for his efforts in the formation of the Association. The following members of the executive committee were present: John J. Amory; H. A. Lozler, Jr.; J. N. Schoonmaker; H. R. Sutphen; J. S. Bunting; C. L. Altemus; E. A. Riotte; A. Massenet; A. Snyder; A. E. Eldridge; H. Newton Whittelsey; by proxy, J. S. Matthews; J. B. Smalley; C. L. Snyder; H. T. Brautigan.

The officers elected for the ensuing year are as follows: President, John J. Amory; Vice-President, H. A. Lozler, Jr.; Second Vice-President, J. N. Schoonmaker; Third Vice-President, Henry R. Sutphen; Treasurer, J. S. Bunting; Secretary, Hugh S. Gambel.

It was agreed that members of the association should use in their advertisements the words: "Member of the National Association of Engine and Boat Manufacturers," and that the same should be placed on all stationery.

The association now has 50 members, active and associate, who are taking a keen interest in its welfare.

It is a notable fact that usually persons who are prejudiced against motorcycles and automobiles are those who have learned what they know on the subject from watching the machines go by.

St. Louis Auto Club's Sylvan Retreat.

Special Correspondence.

ST. LOUIS, July 16.—The country club house recently occupied by the Automobile Club of St. Louis stands on Clayton Road opposite the St. Louis Country Club. The quaint red brick manor house is a type of the ante-bellum style of architecture. The estate was the property of the Crows, an aristocratic old family, and the old-time house with its twenty large rooms is extremely picturesque. It has a high brick cupola and broad wooden verandas. The house has been entirely refinished and refurnished to meet the requirements of the club during the summer. The dwelling stands back from Clayton Road about a quarter mile. The approach is through a magnificent grove of hardwood trees. Great orchards extend to the left of the lawn and in the rear are well stocked fish ponds. Beyond the barn, which is used as a garage, is a big vegetable garden where a hundred delicacies are being grown for the August visitors.

After the white heat and noise of the Universal Exposition it is like Arcadia to get out to the deep quiet of this retreat. The only sounds on a quiet day are the twitter of occasional birds, or the droning of bees. Perhaps in the distance is heard the faraway throb of a motor, then the car draws nearer and pulses up the driveway where the chauffeur announces that a number of members of the club will be out to dinner. Tables may be placed on the lawn, and famous dinners are served in the open air. Many of the members of the St. Louis Automobile Club are also members of the St. Louis Country Club, but they took this house in order to entertain visiting motorists during the weeks of August. So unique and delightful is the place that it will be purchased and retained permanently by the club.

About seventy members are enrolled on the list of the St. Louis Automobile Club. Their object at present is to make the stay of visiting motorists as pleasant and comfortable as possible. They are trying to abolish the speed limit of six miles an hour within the city limits. Every member of the club is willing to stand by anything reasonable, but they affirm that even funerals in St. Louis are permitted to go faster than that. They hold also that the county licenses are not legal. Now, if a St. Louisian goes outside his own county in an afternoon's run he is obliged to pay a county fee of \$2. Suppose he passes through three or four counties in the course of his half day's run, his bill is enormous. In the city proper he pays a license fee of \$10. The club has at least succeeded in extending the freedom of the city to visiting automobilists without a license fee. A visitor's license is asked, which costs \$5, but when the guest is ready to leave he is refunded \$4.50, the fifty cents retained just

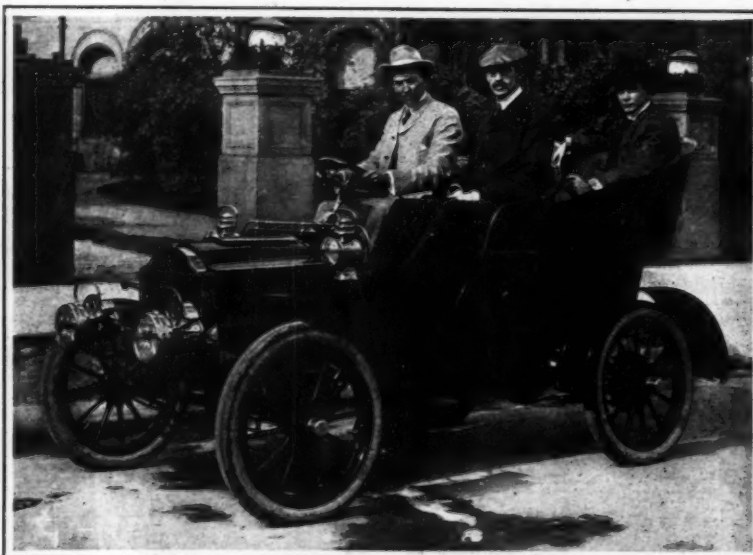
covering the cost of registering his car and placarding it.

Miss Alice Roosevelt is much interested in motor driving, and while she was in St. Louis recently she was driven out to the new quarters of the St. Louis Automobile Club. She used an automobile several times during her stay, and expressed surprise at the number of cars in the World's Fair city.

New club officers were elected at a recent meeting at the new headquarters. F. W. Scofield was obliged to resign the presidency owing to continued business interests away from St. Louis, and Albert B. Lambert was chosen president, with Bertram B. Culver, secretary and treasurer. With these two enthusiastic leaders at the head, the club will continue its successful season of phenomenal growth. The board of direc-

The party will be held on the lawn under the oaks in front of the clubhouse. The date is not definitely decided upon, but it will probably be August 18.

President A. B. Lambert, of the club, is doing active campaign work against the speed limit. He has invited several of the mounted park police to take a ride in his car and judge for themselves the speed of an automobile and a horse. In one instance when a carriage passed he asked the guard at what pace the horses were going. "Eight miles an hour," said the policeman. By the speed meter attached to the motor car it was found that the team was going more than twelve miles an hour. It is conclusive that nearly every turnout in Forest Park breaks the law, which shows that the law is scarcely a just one, as very few accidents have happened there. Mr. Lambert offers to make tests in Forest Park to demonstrate the different speeds of both automobile and carriage. If the city officials and



GEORGE ADE, AUTHOR AND LIBRETTIST, AT THE WHEEL OF HIS NEW OLDS.

tors includes some of the most enthusiastic young business men of St. Louis. Among them are Dr. E. N. Senseney, J. A. Prescott, E. R. Cuendet, A. N. Niedringhaus, G. H. Walker, E. H. Stedman and C. M. Dolph.

At a recent meeting the club admitted fifteen new members. The club is extremely exclusive, and the officers of the organization are working hard to make it one of the best socially in the city. Much is being done to make for better automobile legislation. The clubhouse is being furnished with a ladies' tea room and a growlery. The plan is to make the clubhouse as complete as possible for visiting guests, who are already beginning to arrive, and particularly for the motorists who are coming in August.

The St. Louis end of the A. A. A. tour is in the hands of the St. Louis Automobile Club, and its committees are making ample preparations to take care of their guests. A lawn party is being arranged, which will be the largest social event of the summer.

members of the police force will attend the trials will be made before the motorists come from the East.

George Ade in His New Car.

George Ade, author and librettist, is a firm believer in automobiling, and has supported his opinion by the purchase of an Oldsmobile light tonneau, which was delivered to him a short time ago. His first machine was an Oldsmobile runabout, and his recent purchase shows his faith in the product of the Olds Motor Works.

AUTOMOBILISTS of Battle Creek, Mich., have formed an association for the purpose of fighting the new ordinance requiring the tagging of automobiles and fixing the speed limit at six miles an hour. The association agrees to pay the legal expenses of any member arrested for violating the ordinance.

Auto Parade Prize Winners.

Never have automobile parades been so popular and so successful as this season. These manifestations of automobile enthusiasm have been one of the most remarkable features of the outdoor season of the present year. Some degree of success has attended such affairs in past years in the smaller cities, but it was almost impossible to arouse interest in them in the larger cities. This spring, however, automobile parades with from 200 to 400 vehicles in line have been held in New York, Chicago, Boston, Cleveland and Cincinnati, while dozens of lesser cities from Lewiston, Maine, to Los Angeles, Cal., and from Minneapolis to Austin, Tex., have had proportionally large and successful turnouts.

The increased interest in them may be accounted for by a number of reasons, such as the larger number of automobiles in use, the desire to offer an ocular remonstrance against unjust and unreasonable legislation, and the improvement in reliability and appearance of motor cars themselves.

This year's parades, which reached a numerical climax July 4, have been notable as well for the beauty and uniqueness of some of the decorations of participating cars as for the number of vehicles taking part and the keen interest shown by the general public. Among the most original decorations were those in the Fourth of July parade at Springfield, Mass., in which seventy cars took part. Several of these were in the form of floats, as shown in the large engraving. Especially novel was the hay wagon float, seen in the middle, with a mowing machine drawn behind. This was a two-cylinder Knox touring car, fitted with a hayrack by the men from the body department of the Knox factory and loaded with hay and "Rubés." It was awarded third prize by the committee on decorations. First prize went to Forbes & Wallace, dry goods storekeepers, whose window dresser

trimmed one of the firm's large Knox delivery wagons elaborately and artistically in blue and white and mounted a big golden eagle at the front with a bunch of firecrackers in its beak.

Another novel and pleasing effect was presented by the float entered by the Knox Automobile Company, which is shown at the right in the large engraving. This carried a large boat, in which were seated a number of children. It was in charge of Mr. and Mrs. C. R. Culver, but was not entered in the competition for prizes. Much attention was attracted also by a car handsomely decorated and carrying three large butterflies suspended in front as if drawing the machine.

First prize for the best decorated car in the Fourth of July parade in Erie, Pa., was awarded to Irving M. Izer, who entered the car shown in one of the small engravings completely covered with flowers and occupied by pretty women.

The most elaborate creation in the way of an automobile float was seen in a parade



REPRODUCTION OF SCENE FROM FAUST.

Altree, owner of the car. The world is represented by the automobile and Marguerite, Faust, and the chauffeur, heaven by the two angels at the top standing over the tonneau, and hades by Mephistopheles and the imp stirring the pot of fire at the front near the ground.

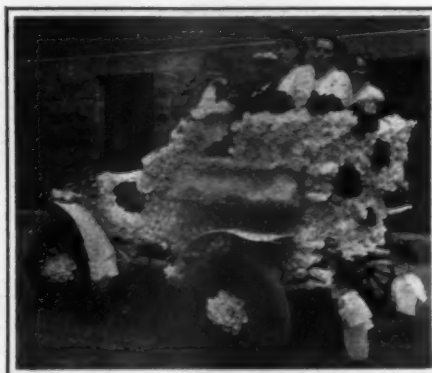
YOUTHFUL DIVERSION IN MISSOURI.

Special Correspondence.

KANSAS CITY, July 9.—The gentle pastime of throwing stones at motorists has reached Kansas City, and attacks of this kind have now arrived at the stage where the police begin to take notice. Boys are the principal offenders, although older rowdies are responsible for some of the complaints. E. S. Moser was struck on the point of the jaw some days ago with a jagged stone and suffered considerably from the wound.

Others have been attacked with mud, beer bottles and other missiles. E. P. Moriarty has offered the use of a machine to the police if they wish to make experiments for themselves.

AUTOMOBILES are now prohibited from running on the roads of the mountain top at Montreal, Canada.



FIRST PRIZE WINNER IN ERIE.

held in June in Tampa, Fla., where it won first prize, not for the beauty of its decoration but because of the excellent reproduction of a scene from the familiar opera "Faust." The scene was designed by Dr.

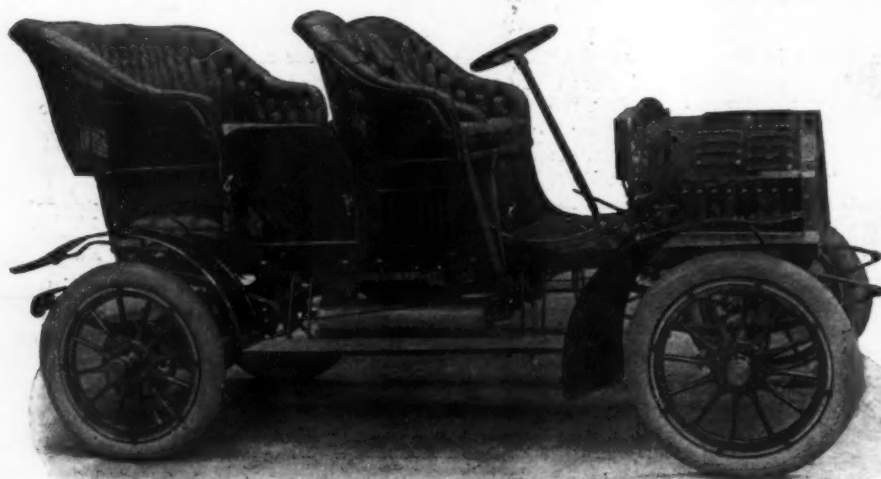


NOVEL CONCEPTIONS IN AUTOMOBILE DECORATION SEEN IN FOURTH OF JULY PARADE IN SPRINGFIELD, MASS.

Reliance Touring Car.

The first side entrance tonneau car to be offered by an American concern as its regular model is the Reliance touring car illustrated herewith. A first lot of fifty of these is being completed now by the Reliance Automobile Manufacturing Company, 67 to 103 Fort Street East, Detroit.

The long wheelbase that makes it possible to provide a side door on both sides to give comfortable access to the tonneau portion of the body directly from the sidewalk also provides ample room between the dash and the front seat and the front and rear seats, so that there will be no uncomfortable cramping of legs and so that



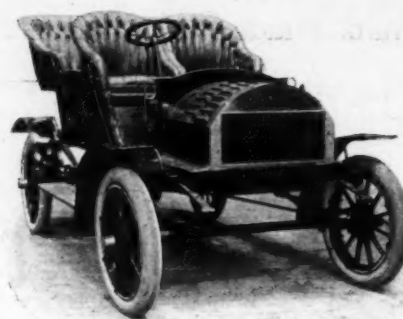
RELiance TOURING CAR. WITH DOUBLE OPPOSED MOTOR, SHOWING SIDE ENTRANCE.

a considerable amount of luggage can be disposed in the bottom of the tonneau. These comfort features of the car are further increased by the easy riding qualities afforded by the long wheelbase, by the fact that there is very little overhang to the rear seat and by the construction of the seats themselves, which have high backs and are luxuriously upholstered. The side entrance permits of making the rear seat with an unbroken back. This seat will comfortably hold three adults. With the operating levers in the position shown in the engraving, it will be seen that entrance to the driver's seat from the right hand side is not difficult. The tonneau portion of the body is detachable and a sloping cover may be substituted to convert the car into a machine for cross country traveling with two persons aboard.

The car is driven by a double opposed alternating four-cycle motor placed horizontally under the middle of the body, as shown in the engraving of the chassis. This engine is semi-air cooled, the heads of the cylinders, including valves, being water cooled, while flanges radiate the lesser heat from the lower or inner ends of the cylinders. The cylinders are of 4.3-4 inches bore and 5.1-2 inches stroke. All valves are mechanically operated, and by the use of an

ingenious fastener on the valve stems the use of nuts and cotter pins is avoided. Both valves on either cylinder can be removed quickly by the loosening of one nut. The valves are set in valve chambers on the lower sides of the cylinder heads. The lubricator is placed directly over the crank case.

Power is transmitted from the flywheel in the center of the chassis by means of a friction ring to sliding change speed gears mounted on the same subframe with the engine. This subframe has three-point suspension from the main frame, insuring alignment of the crankshaft and gearing. There are two forward speeds and reverse. The clutch and brake are controlled by one pedal, while an interlocking device



FRONT VIEW OF RELIANCE CAR.

Speed of the engine is controlled by a centrifugal governor which automatically retards the spark when the engine stops so that there can be no back kick when cranking to start.

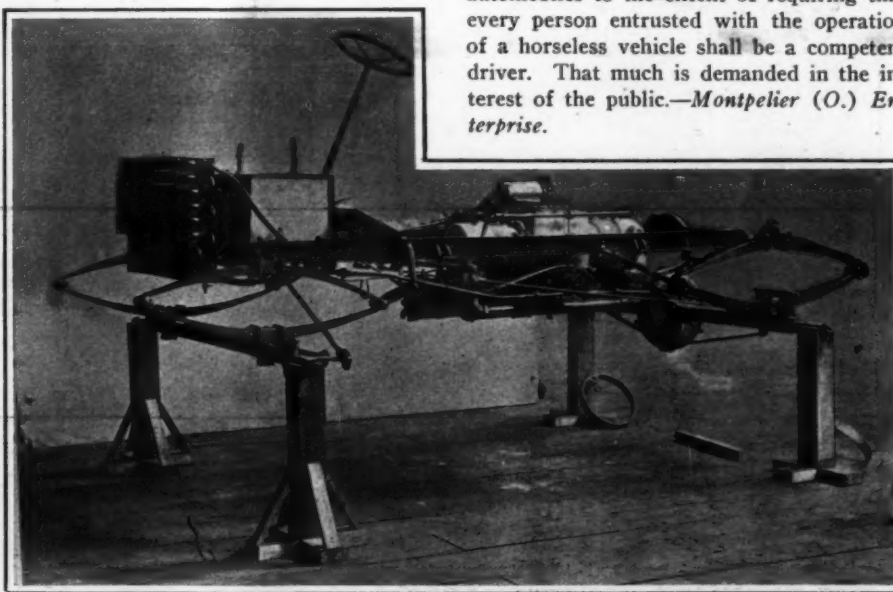
A positive rotary pump having two deliveries circulates the water around the cylinder heads and through the large fin radiator mounted in the front of the hood. Full elliptic dragon head springs on the rear axle give great flexibility in the body suspension. Hyatt roller bearings, five inches long and having improved ball end thrust, are used on the live rear axle.

The motor and gears are readily accessible through the floor of the tonneau, the broad side doors contributing greatly to this convenience in this type of car.

Primary current for the jump spark ignition is taken from a double set of dry cells, either of which can be switched into use while the other recuperates. Each car is provided with two vibrating dash coils, either of which operates both cylinders so that there is always one coil in reserve.

Although the manufacturers got a late start for the present season, the Reliance company expects to complete at least 100 of these cars this year.

CERTAINLY there can be no reasonable objection to the regulation of the use of automobiles to the extent of requiring that every person entrusted with the operation of a horseless vehicle shall be a competent driver. That much is demanded in the interest of the public.—Montpelier (O.) Enterprise.



CHASSIS OF RELIANCE TOURING CAR MOUNTED ON STANDARDS FOR PAINTING.

Grade Crossing Protection.

Growing use of the automobile is already beginning to be a feature in the long fight waged by American cities against grade crossings at railroad intersections with wagon roads. As a result of its investigation into the fatal accident at Van Cortlandt Park, New York, June 12, when a New York Central train ran into an automobile owned and driven by George J. Noakes, the New York State Board of Railroad Commissioners recommended, in its report issued recently at Albany, that the crossing at Van Cortlandt Park be at once equipped with gates on both sides of the tracks and that a watchman be placed on duty to operate the gates at all hours. This is recom-

reported to the board of directors that the deaths of Mr. and Mrs. George E. Dixon, of La Grange, was undoubtedly due to the high rate of speed at which the electric car of the Aurora, Elgin & Chicago Railway Company was running when it struck the automobile. The club's counsel has written to both the electric railroad company and to the Chicago & Great Western Railroad Company, asking that suitable provision be made for the protection of the public at the crossing.

John Farson's "Pike Yachts."

Special Correspondence.

CHICAGO, July 16.—President John Farson of the Chicago Automobile Club, lately received his new 60-horsepower Apperson

himself, Mr. Farson has two sons, John, Jr., and William, both of whom are expert drivers of automobiles. The Farson cars, driven by the three male members of the family and one of the chauffeurs, may now be seen almost any pleasant day starting from the Oak Park home with the big Apperson in the lead. Mrs. Farson returned from Europe recently, arriving in time to take the first ride with her husband in the big car.

"THIS automobile ordinance is a dashed nuisance!" City Clerk Elbourn declared this morning, as he slammed his telephone receiver back upon the hook, after answering an inquiry from some one who wanted to know the name of the owner of machine



JOHN FARSON'S NEW APPERSON, NATIONAL AND PACKARD CARS AT PLEASANT HOME, HIS OAK PARK, CHICAGO, RESIDENCE.
Mr. Farson at wheel of canopy covered Apperson Car and his two Sons operating the others.

mended as a temporary precaution only, as it is the opinion that the grade crossing should be done away with as quickly as possible by an agreement between the city authorities and the railroad company. These recommendations are made notwithstanding the commissioners held that the accident was due to the carelessness of the operator of the car, who failed to note the approach of a train from the south, although he had an unobstructed view of the tracks for more than a quarter of a mile.

Another fatal automobile accident that has brought up the question of adequate protection at railroad crossings was that of the Dixon party, at Austin, Ill., three weeks ago. The attorney for the Chicago Automobile Club, who has made an investigation into the direct cause of the accident,

car, built after special designs by Mr. Farson. It has several features not found in the regular model. The Farson car is the highest powered American touring car made up to this time. It has developed a very high rate of speed in a tryout at the factory, and the manufacturers regard it as the crowning piece of work turned out from the Kohano plant.

Mr. Farson recently purchased a Thomas, a Packard and a National, which gives him a fleet of four "pike yachts," as he is pleased to call them. The owner takes especial pleasure in entertaining the ministers of Oak Park and the neighboring suburbs, and he has about decided to call the new sixty "The Ministers' Delight" and devote it principally to their use.

Besides being an enthusiastic motorist

number steen. "It keeps one clerk busy all day long replying to fool questions. Some nervous fellow sees a machine moving out of a walk, takes the number, and wants this office to investigate and find out how fast it was running; or some owner of an old-style machine wants to find out who owns one of the new beauties; or else some curious woman wants to know who it was that had Mrs. Blank out riding with him last night. There's no end to it. I'm going to ask the council to increase the permit fee, so that we can afford to put on a new clerk and an extra 'phone for auto work."—*Omaha News.*

A STEAM motor coach, carrying thirty-six passengers, has been placed in service on the Northwestern Railway, in India.

Correspondence

Electric Ignition Troubles.

Editor THE AUTOMOBILE:

Sir—I am having all sorts of trouble with ignition. Am driving a touring car with a four-cylinder vertical high-speed motor, with direct transmission, and the car is giving every satisfaction, with the exception of the ignition. The car is equipped with small dynamo, and a two-cell storage battery. The cells are supposed to be used one at a time—the extra one being held for reserve. When the car is in operation, and the motor at moderate speed, the ammeter shows that the dynamo is doing its work. The dynamo is connected to the positive cell of the battery, and is also directly connected to the wire leading to the spark coil. The negative side of the battery is connected to the frame of the car. When the motor is doing its work of course the ignition is perfect, but as soon as the battery runs down a little, and the motor runs at too slow a speed to make the dynamo do its work, the trouble begins. The cylinders miss fire and the battery runs down very rapidly, so that within a very few minutes after the motor begins to miss fire it is impossible to run the car. I have succeeded in cranking the motor and speeding it up so that the dynamo takes up the work, and the sparking is all right as long as the motor is run at full speed, but as soon as the clutch is let in to start the car, the speed of the motor being thus retarded, the dynamo fails to furnish sufficient current, and it is impossible to get the car under motion. The only remedy I have found is to take the batteries out, and have them charged in some charging plant, but even then they are a very uncertain quantity, and sometimes, after running the battery for only a few hours, it weakens, and the other one has to be connected. On one or two occasions I have been forced to procure dry cells to run the car in.

I am now trying the experiment of charging the extra cell entirely separate from the cell that is furnishing the spark coil, hoping that the dynamo may charge the weak battery while the live one is being run down. I have also changed the pulley on the dynamo, putting on a much smaller one, which has increased the capacity of the dynamo, so that the reading of the ammeter at a given speed is much higher than it was previously. The same disastrous result has occurred with the batteries, and I am very anxious to know, first, if the dynamo and the storage battery is the best way to furnish the current for ignition, and second, what modifications of practice with the present equipment will insure the result intended by the manufacturers. Of course, I appreciate that as the motor runs at high speed it requires a much greater quantity of electricity than a slow speed motor, or a motor with a lesser number of cylinders.

I have about come to the conclusion that the dry cell is the one expedient, and should be very much pleased to have some of your many readers straighten out this dynamo and storage ignition problem for me. H.
New York.

Road Around Montezuma Marsh.

Editor THE AUTOMOBILE:

Sir:—After having made several automobile runs between Syracuse and Rochester, with a view to locating the best route by which the tourists in the A. A. A. run to St. Louis may avoid the notorious Montezuma Marsh and its muddy road, I have located a very good route as follows:

From Syracuse to Camillus, through Elbridge, Weedsport, Spring Lake, South Butler, Clyde, Lyons, Newark, Palmyra and Fairport to Rochester.

The people along this route have done a great deal of work upon the roads, which are of a soil that makes a very nice, hard road. There are some hills, but not anything to interfere with automobiles. As a whole, it is a very good road. The trouble with automobilists has been that when they arrive at Port Byron, in going from the east to the west, they go across to the marsh. This marsh extends north of Cayuga Lake to about Conquest, but by going from Port Byron to Spring Lake, you go north of Conquest and do not come in contact with the marsh at all. The automobilists who state that the marsh begins at the north end of Cayuga Lake and extends practically all the way to Lake Ontario are wrong, for the country through Spring Lake is very high and a very beautiful country. This makes the trip to Rochester, according to my odometer, ninety-three miles, whereas the road direct through the marsh is something like eighty-one or eighty-two. H. W. SMITH.

Syracuse, N. Y.

Need of a Strong Organization.

Editor THE AUTOMOBILE:

Sir:—A constable in the town of Russell, about fifteen miles west of Springfield, Mass., got busy one Sunday recently and made a haul of about twenty automobilists, using an old stop-watch, "sighting" the victims as nearly as he could guess when they reached a certain point in the road and again when they had passed a point in the other direction, and also taking their numbers. Then the owners of such numbered vehicles were commanded to appear before the court in Westfield. The father of the constable is a Springfield lawyer, and appeared as counsel for the prosecution, which was suggestive to say the least; but any possible rake-off in the matter of "costs" resembled "counting the chickens before they were hatched," for at the trial, the judge, who evidently comprehended the wholesale "hold up," and believes in a sensible enforcement of the law, decided that

the owner of the car and number must be identified as the person driving it at the time, which the constable could not do except in two cases, and in those cases the judge dismissed the complaints on the ground of the doubtful method of timing, so that all were dismissed together.

Judge Kellogg is certainly deserving of high praise for showing that he is unaffected by the common clamor against automobiles and is uninfluenced by the chance to gather in large fees and fines from men who are supposed to be rich because they own automobiles and can afford to be robbed under the pretense of administering justice. It has since been reported that the constable had another list of twenty motorists to be haled into court as soon as the first batch had been disposed of, but the cases have been dropped.

Such attempts at this sort of legal highway robbery are not popular in Massachusetts, and this matter has reflected unfavorably upon the town where it occurred. Unreasonable racing and speeding, endangering the public safety, should be punished according to law, but justice should be tempered with reason and common sense in enforcing a law notorious for the invitation it offers to constables to trap profitable "game" under it.

There is a general feeling of regret, particularly among unattached motorists, on account of the failure of the committee to agree upon terms for merging the two rival associations of automobilists into one. Now that the clan are being preyed upon and persecuted by ignorant persons and crafty officials there is need of a single, strong and powerful association, to work for good roads, for reasonable laws, and all the advantages coming from organization. But two associations will weaken the efficiency of both, and to continue them after the members have voted to "get together," is sheer foolishness, and the parties blocking the way ought to bear the odium of it. Why not adopt a plan for both club and individual representation, according to the status of the motorist? Owing to the rapid increase of motoring, it is probable that a very large proportion of the persons using automobiles will not be members of any club, and their membership in the national association is most important.

The increasing numbers of automobiles in and around the cities and the almost absolute immunity from accident, indicate that the public is becoming used to the improved machines, and that with acquired skill, motorists are using them with care and safety to all concerned. Nervous persons express fright after some mad racer has gone through, in search of some kind of a "record."

The question has been discussed here of late, as to how many miles a set of double tube tires should run on a runabout, before playing out. Let those who have had experiences relate them.

R. H. M.

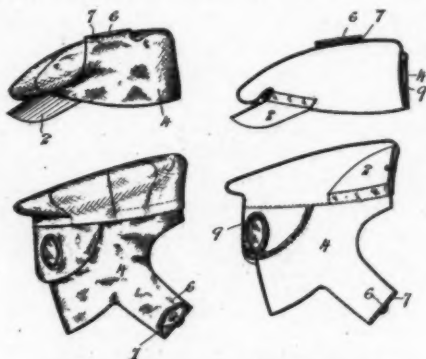
Springfield, Mass.

Patents

Automobile Cap.

No. 763,602.—R. Fox, of New Rochelle, N. Y.

A convertible cap arranged to be equally serviceable in fair weather or foul. The flap 4 is arranged to turn down, as seen in the two lower figures, and its ends 6 7 button together at the back of the neck, the cap being reversed for this purpose when worn in stormy weather. Flap 4 is attached to the bottom edge of the cap at the sides, but not at the back, which is loose and drops down below the eyes. Between the back of the cap and flap 4 is the mask 9, which turns up and is covered by 4 when not in use, but may be dropped down as shown, covering the space between the bottom edge of the cap and the edge of 4 where the latter is not attached to the



FOX CONVERTIBLE CAP AND MASK.

cap. Suitable eyeglasses are inserted in 9, and the visor 2 of the cap may be folded up inside it when the conversion is made.

Storage Battery Plate.

No. 764,282.—W. O. Duntley, of Chicago, Illinois.

A battery cell having a removable plug in its base, made tight by a soft rubber gasket, squeezed between the edges of two disks, which form the body of the plug. This invention was described in this publication on page 37, issue of July 16.

Pneumatic Tire Rim.

No. 764,140.—Thomas Midgley, of Columbus, Ohio.

The rim used in connection with the Dunlop detachable tire. Its feature is a pair of flattened tubular rings set into grooves, one at each side of the rim. These rings are split at one point, and the ends are drawn together by bolts, or the like, to render them immovable on the rim. The tire is held in place by simple air pressure.

Spring Tires.

No. 763,536.—J. Alloatti, of Paris, France.

A tire comprised wholly of narrow hook-shaped springs, formed and attached as shown. The hook-like ends are intended to close together under pressure, and the general intention is that the springs, being

small and close together, will yield severally and individually when encountering a rough place in the road, substantially as the pneumatic tire does. The idea seems to com-



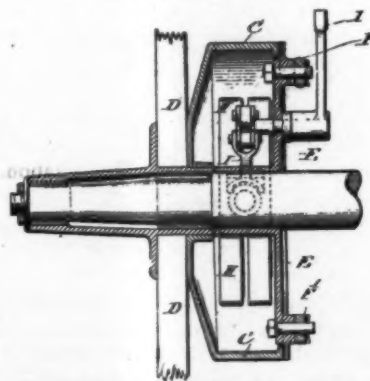
ALLOATTI SPRING TIRE.

bine in an unusually high degree the features of attractiveness on paper and impossibility in practice, which seem to characterize most spring tires thus far devised.

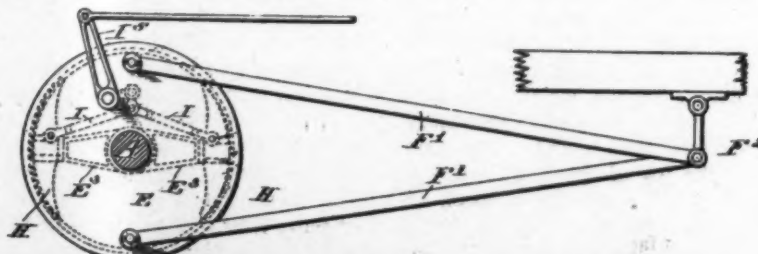
Expanding Hub Brake.

No. 764,357.—J. G. Heaslet, of Philadelphia, Penn.

The brake drum *C* is closed, as shown in the upper sketch, on the side toward the wheel spokes *D D*. On the other side it is closed by a fixed disk *E*, arranged to make it as near dust-proof as possible, and having internal projections *E3* supporting the radially movable brake-shoes *H H*. A lever *I5* acts through a short arm and toggle links *I I* to force these brake-shoes outward. As the tendency of *E* when the



CROSS SECTION OF HEASLET BRAKE



HEASLET INTERNAL EXPANDING HUB BRAKE AND STRUT RODS.

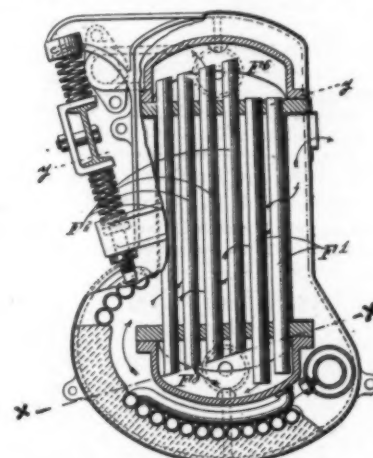
brake-shoes grip is to rotate with the wheel; the two strut rods *F1* are attached to it, and pivoted to a point *F2* on the frame.

As *E* is loose on the axle the rear springs suffer no bending or torsion when the brakes are applied.

Steam Generator.

No. 763,655.—T. W. Barber, of London, England.

A generator for vehicles, which most nearly falls in the classification of the water tube boiler. It comprises essentially two groups of slightly inclined tubes *F1* and *F2*, upper and lower headers are used, and the lower ends of tubes *F1* go practically to the bottom of the lower header, while the lower ends of tubes *F2* are a little higher. The normal water level is on line *yy*, and the expectation is that steam will collect in the upper part of the bottom header *F8*, when the generator is at work. The result will be that the water level in *F8* will have to rise to the line *xx* before water will enter



BARBER STEAM GENERATOR.

the bottom of tubes *F2*. Consequently its tubes will be filled with a mixture of water and steam, and as the fire from the burner will be arranged to play principally on these tubes, rather than on tubes *F1*, the movement of the contained water and steam in the former will be upward. The water carried into the upper header *F6* will fall to the bottom of the same and be returned by tubes *F1* to the bottom of *F8*. It will be noted that the circulation is not due to gravity, but rather to the continued expansion and upward movement of the steam in tubes *F2*. Practically the weight of water in tubes *F1* will balance or slightly overbalance the weight of the water and steam in tubes *F2*. The generator is partly

spring-supported, as the drawings show, and the burner is arranged to use hydrocarbon fuel.



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Copies Printed This Issue, - - 12,000
" " Since Jan. 1, - 361,300**Speed
Maniacs
a Menace.**

A few years ago the popular hostility against automobiles was based mainly on the fact that they frightened horses and were excessively noisy. To-day the average automobile is not noisy—indeed, it is sometimes dangerously noiseless—and the horses of urban and suburban communities, at least, are so far wonted to it that with anything approaching reasonable consideration on the part of the chauffeur run-away accidents are rare.

But, while this early source of friction has nearly worn itself away, a new menace, more dangerous because not to the same degree self-correcting, has gradually arisen in the increasing speed of the faster machines and their rapidly growing vogue. Nothing is more common than the assertion that the man in a fast car is utterly careless of the rights of others in the road. If this were literally true the situation would be one justifying any remedy however desperate. Unhappily, it is in fact so nearly true as to warrant grave anxiety for the future of automobilism in the vicinity of New York at least, unless some effective remedy for its abuses be soon found. The plain fact is, that the joy of speed, the exhilarating sense of being able by a touch to command a flight swifter than the birds, becomes for certain natures an intoxication, which for the time being renders the subject insensible to ordinary considerations of courtesy and even to the plain dictates of prudence. The man who, forgetting that

his own life is involved in the stake, will recklessly race to beat a train at a crossing, who will coast at speed, even in a rain storm, down an unknown hill, who will start across a railroad track with the flagman frantically trying to save him from dashing into an approaching train, or who will drive by night at thirty miles an hour with insufficient lamps or on an unfamiliar road,—such a man is plainly not in his sober senses, and other lives are not likely to be more sacred to him than his own.

The ease with which persons of weak self-control, and with no other qualification than depth of purse for the responsibilities which go with a fast machine, can acquire and use cars capable of speeds from thirty to fifty or sixty miles an hour, is a most serious fact. Specific means must be found to curb these speed maniacs, for one such man in a community can bring a whole tribe of law-abiding drivers into disrepute. The present outbreak of shooting and such utterances as those of Magistrate Cornell, indefensible though they are, merely signify that insensate motoring will produce an insensate public. The jail penalty, inflicted with rigorous justice, not on the hired chauffeur, but on his responsible employer, is the only remedy likely to be effective. Let us see it applied.

**Tour
to
St. Louis.**

By the time this issue of THE AUTOMOBILE reaches most of our readers the Boston and the New York via Albany contingents in the national club tour to St. Louis will have started on their long trip. The list of entries for this tour has fallen considerably short of the rather sanguine early expectations of its organizers. It will be over fifty, and late entries may bring it nearly double that number, of whom, however, only a few will be in the far Eastern contingent. Doubtless the affair will derive its best aspect numerically from the club escorts which it will undoubtedly receive on entering and leaving the larger cities en route.

But although the dream of a great hegira of automobilists, hundreds or thousands strong, streaming along the highways and descending like a wolf on the fold to overwhelm the hotels and garages at every night stop, is in no danger of being realized, yet the run may go on record as a brilliant success of another sort, if it is carried out in sensible fashion. There are a number of cars entered by manufacturers, but these, it may be hoped, will not fix the tone and spirit of the run. The affair is promoted by and for amateurs, and the busy men from their affairs to set their faces toward the Mecca of St. Louis will best serve their own comfort and encourage future undertakings of the same sort by shunning any attempt to make it an "endurance run." The schedule is arranged on the touring plan, with easy stages, in no case over 120 miles a day; and with good

weather it can be followed with ease. With wet weather, no one who considers his comfort or his machine will pay much attention to the schedule from Buffalo to Cleveland or from Chicago to St. Louis, for the simple reason that the roads, especially in the latter section, will be practically impassable.

In one respect at least the tour is likely to have substantial value outside of the immediate field of the automobile industry. It will call attention in a striking way to the road conditions, good and bad, in the several parts of the country traversed, and the agitation, comparison of methods, and general information thus disseminated cannot fail to have a good effect in aiding the cause of highway improvement where it is most needed.

**Another
Reliability
Cup.**

Readers of the announcement in these pages last week of Charles J. Glidden's intention to offer an international challenge cup for competition in non-stop runs or touring, will be interested in the news that a similar trophy has just been offered in England by Sir Thomas Dewar, M. P., in the shape of a perpetual challenge cup bearing the donor's name. The offer of this cup, which is to be competed for by non-stop runs of at least 2,000 miles, was suggested to Sir Thomas by the recent attempt of D. M. Weigel to cover 2,000 miles without stopping the motor of his 15-horsepower Talbot car. This feat, which had been unsuccessfully attempted by others several times before, was carried out by Mr. Weigel in 124 hours of continuous running, and he is now the first to hold the Dewar cup.

The exact terms of future competitions are unsettled, but will probably include the following: Trials for the cup shall not take place oftener than twice in one year, three months' notice of challenge to be given and the course to be not less than 2,000 miles long and selected by Sir Thomas Dewar. The challenger shall state the distance he challenges the holder for. Observers will be appointed by the cup trustees, and at least four persons shall be carried through the whole tour. Not more than three changes of drivers are to be permitted.

A challenge has already been received from Henry Fournier, and several others are expected in the near future.



A decidedly interesting point brought out in connection with the accident at Rockville Centre, L. I., a few days ago, is the fact that the L. I. Railroad Co. some time ago declared the crossing at which the smash occurred to be dangerous, and, with the support of the State Railroad Commissioners, endeavored to build a bridge at that point. This praiseworthy attempt was blocked by the violent opposition of the townspeople themselves, who apparently preferred the risk of losing their unimport-

ant necks to helping bear the town's share of the expense. If the leader of Rockville Centre's opposition were to be the next victim, the rest of Long Island would be able to control its grief.



Several crudities and inconsistencies have developed in the new Iowa automobile law. One anxious owner wrote to the Secretary of State asking: "How am I to attach a number a foot long and half a foot high and a red light to the rear of my vehicle, which is a motor cycle?" After due consideration, the secretary passed up the puzzle by replying that his duties as fixed by the law were to collect the fees and register the machines, while the law required the owners to do the attaching of the numbers and lights.

While the automobile bill was pending in the legislature, S. D. Alexander, of Winterset, Iowa, who had noted the section requiring that a description of the car and its "character," together with the name of the maker and owner, must accompany the application and fee for registration, wrote to the Secretary of State as follows:

"Having very recently purchased an automobile, and having observed that the legislature is about to legislate for the control of the same, I hasten to say that if you will inform me when you open your herd books I will immediately send you the breeding and pedigree of my machine. Cannot at this time give you the name of the sire, but can assure you it is damned by everybody that drives a horse or a mule."



We commend to Magistrate Cornell's attention Section 6, Subdivision 1, of Chapter 538 of the Laws of 1904, New York State, better known as the Hill Automobile Law. This subdivision provides that a second or subsequent violation of the speed limits may be punished by imprisonment not exceeding thirty days, as well as or instead of by a fine. If Magistrate Cornell is in earnest, why does he not use the jail penalty on a few proved cases of furious driving within his own jurisdiction, and advise his brother magistrates to do the same? Talk of shooting is not only wicked but foolish, for it leads nowhere. The automobilist could shoot, if he wanted to, as well as the sheriff, and he would have the law on his side, as he would shoot in self-defense.

JAMES BLACK purchased a new automobile in Toledo Wednesday. It is the very latest and it is red. This makes five for Bowling Green and there are more coming. The next announcement will be of an auto club.—*Bowling Green (O.) Sentinel.*

IF SOME of those councilmen who rode in automobiles in the parade yesterday afternoon didn't go faster than six miles an hour after the parade had disbanded the speed experts were mistaken.—*Battle Creek (Mich.) Moon.*

Preparations on Eve of Big Tour.

Arrangements for the St. Louis tour have been about completed, and the entry numbers and route cards are being forwarded to entrants. Each day's program is printed on a separate card, and the cards are furnished in a leather case with a clear celluloid sheet in one side, so that the card for the current day, placed next to the celluloid, may be seen without removing it from the case and without exposing it to rain or dirt. Arrangements for piloting and laying the trail of confetti have been made. Tour officials in portions of Ohio, Illinois and Indiana have placed arrows on the roads leading to night stops.

President Whipple has made the suggestion, which will be carried out, that a number of the tourists act as couriers, carrying letters from the mayors of Boston, Springfield (Mass.), Albany, Syracuse, Utica, Rochester, Buffalo, Cleveland, Toledo, Chicago, Detroit, Springfield (Ill.), Philadelphia, Baltimore, New York, Pittsburg, Columbus, Richmond, Indianapolis, Louisville, Cincinnati, Kansas City and other cities, to Mayor Rolla Wells, of St. Louis. These will be presented on Aug. 11, St. Louis Day.

From letters received from garage proprietors along the route, the tour officials feel safe in making the statement that there will be ample accommodation for all cars at every point along the route.

THEATER PARTY IN SYRACUSE.

Special Correspondence.

SYRACUSE, July 18.—The Automobile Club of Syracuse, at its meeting to-night, instructed the entertainment committee to arrange for a theater party at the open air theater at Onondaga Valley, three miles from the city, to which the St. Louis tourists will be invited on the evening of July 29, when they stop here for a few hours. Special trolley cars will convey the party to the theater.

Handsome club buttons attached to ribbons in the club colors inscribed in letters of gold, "Welcome to the World's Fair Tourists," will be given to the visitors and the club members.

The tour headquarters in Syracuse, the Yates Hotel, will be decorated for the occasion.

The club also decided to advise the Tour Committee of the American Automobile Association not to make a side trip from Chittenango to Cazenovia to view the beautiful lake of that name on account of the poor condition of the roads in that section.

BUFFALO HOSPITALITY FOR TOURISTS.

Special Correspondence.

BUFFALO, July 18.—Elaborate preparations are being made by Buffalo automobilists for the entertainment and comfort of the tourists who will make the run from the East to St. Louis, arriving here, as scheduled, Saturday night, July 30, and remaining over Sunday. Never before has the automobile fraternity here worked so hard to make the visit one that will linger long in the memory of the tourists as well as the local people.

The Boston and New York contingents will meet here and go on west together

Monday morning, August 1, by way of Erie. A score or more of Buffalo motorists are planning to join the run.

The success of Buffalo's efforts to entertain the tourists lies with Jess B. Eccleston and a number of willing and energetic assistants. Mr. Eccleston is chairman of the entertainment committee of the Automobile Club of Buffalo, and is one of the most prominent and popular automobile men in New York State. "The members of the Automobile Club are already active," says Mr. Eccleston, "and a committee has completed arrangements for hotel accommodations. Arrangements have also been made to store and care for the tourists' machines. Mr. W. H. Smith, of Syracuse, recently informed me that I had been appointed as a sort of pilot to bring the tourists from Rochester to Buffalo. The Automobile Club will have open house while the tourists are here. I will go to Rochester with several other Buffalo men. We will take bags of confetti and after meeting the tourists will start out ahead, scattering the confetti along the route."

On the Sunday morning the tourists are here they will be escorted to Niagara Falls by Buffalonians and the day will be spent in sightseeing. It has not yet been decided what will be done in an official way by the city.

COLUMBUS PREPARING FOR TOURISTS.

Special Correspondence.

COLUMBUS, O., July 18.—Tourists who pass through this city in the big automobile run to St. Louis will be given a royal reception here August 4. The Columbus Automobile Club has appointed committees to meet and take care of the visitors and their cars over night. Each car will be cared for at the garage conducted by the local agent of that make of cars. Four cars have been assigned for escort and confetti duty. One of the cars will be sent to Delaware, about twenty-five miles northeast of the city, to meet the touring party which comes by way of Cleveland. Another car will go to Zanesville, sixty miles distant, to meet the party coming from the East over the National Turnpike from Baltimore. Open house will be kept by the local club at the Chittenden.

Everything necessary to the comfort and entertainment of the tourists will be looked after.

AN ESCORT THROUGH WORCESTER.

Special Correspondence.

WORCESTER, Mass., July 18.—Edwin C. Harrington and B. Austin Coates have been appointed members of a committee of the Worcester Automobile Club to look after the entertainment of the St. Louis tourists who are expected here on the morning of July 27. This committee will work in co-operation with the general committee, of which Charles J. Glidden is chairman. While no Worcester motorists are expected to participate in the St. Louis tour, local club members will escort the visitors through Worcester, and as far as Leicester or Spencer.

At a recent meeting of the Board of Park Commissioners of Springfield, Ill., resolutions were adopted amending the rules governing automobiles. They provide that no automobile shall be permitted in Washington Park or on the boulevards from 6 p. m. to 5 a. m.; that no one under sixteen years of age shall be permitted to operate a machine in the park or on the boulevards, and that a speed limit of eight miles an hour shall be rigidly enforced.

ROUTE FOR COAST ENDURANCE RUN.

Grades and Road Conditions on 500-Mile Route from San Francisco to Los Angeles as Observed by L. P. Lowe for A. C. of California.

Special Correspondence.

SAN FRANCISCO, July 13.—L. P. Lowe, chairman of the racing committee of the Automobile Club of California, has returned from his trip of inspection of the route proposed for the endurance run of the A. C. of California and the A. C. of Southern California, and has prepared a report giving full and minute details of his trip of inspection. His trip was made within the proposed time and at about an average speed of fifteen miles an hour, the maximum suggested for the run. A slower rate than this will be adopted—probably a maximum of twelve miles an hour and a minimum of eight miles. Starts will be made earlier in the morning and controls reached earlier in the evening than was first suggested. The number of minutes consumed and the number of points with which each machine will be credited at the start will be more than 4,000. Dates will be fixed in a few days.

A stop of one hour will be made each day for luncheon and the taking on of fresh supplies of water and gasoline and looking after the car, and a stop of fifteen minutes will be made in the middle of the forenoon and another in the afternoon for brief rests.

As the run of five hundred miles to Los Angeles will nearly wear out a set of brakes, time will be allowed to attach a new set if necessary; and for this purpose two days will be spent in Los Angeles. As the run is to be made for the purpose of encouraging the careful and safe use of automobiles, stops made for the better adjustment of brakes will not be penalized; but a stop caused by a defective or broken brake will incur a penalty. The round trip from San Francisco to Los Angeles, or from Los Angeles to San Francisco, and back to the starting point, will occupy ten days.

Mr. Lowe collected accurate data with regard to the San Juan Hill between San Francisco and Monterey. This has generally been regarded as one of the most dangerous in the State of California, and has been variously estimated at one to three miles in length and from 20 to 35 per cent. grade. But Mr. Lowe says it is not difficult to surmount the hill with a car of fair power. The steep portion does not exceed four-fifths of a mile in length and the grade nowhere exceeds 18 per cent. according to numerous observations, the average grade from the northern foot of the hill to its summit being 11.23 per cent., with a minimum of 3 per cent. The decline on the south side is 11.4 miles long and is more gradual, the average grade being about 8.1-2 per cent. From the foot of the hill on its northern side to its foot on the southern side occupied twenty-five minutes' running time.

Automobilists are so unwilling to travel over the San Juan Hill that the manager of the Hotel Del Monte at Monterey hopes to get a new route established which will obviate the necessity of taking it. It is hoped to have the new route mapped in time for the annual meet and race of the Automobile Club of California at Del Monte. Owners of cars of sufficient power to negotiate the hill, however, will be repaid by the fine views obtained during the ascent and from the summit.

Mr. Lowe, who made the run to Los Angeles in a White touring car, accompanied

by his brother, S. C. Lowe, and a chauffeur, made many stops for the purpose of inspecting the route, taking photographs and making gradometer observations. The party returned to San Francisco by rail. The distance covered, according to the odometer, was 506.3-4 miles, and the time taken, including all stops except those at the end of each day's run, was 43 hours 16 minutes. An effort was made to conform as nearly as possible to the conditions of the proposed run. On elapsed time, the average rate of speed was 11.71 miles per hour. The running time was 31 hours 50 minutes, or 15.92 miles per hour.

The daily runs from San Francisco were: To Salinas, 110.5-8 miles; elapsed time, 9 hours 25 minutes; San Luis Obispo, 148.3-4 miles; elapsed time, 12 hours 3 minutes; Santa Barbara, 130.1-4 miles; elapsed time, 11 hours 13 minutes; Los Angeles, 117.1-8 miles; elapsed time, 10 hours 35 minutes.

The occupants of the car weighed 620 pounds, the baggage and extra parts 130 pounds, supplies of water and gasoline not being included. The car thus carried 90 pounds more than the 660 pounds required by the conditions of the run.

The roads were found good generally, those in the northern half of the route being better than those in the southern half, except near Los Angeles. The best road was between Oakland and San Jose. The roads were classified as "very good," "good," "fair," "semi-rough," "rough" and "very rough." From San Francisco to Fourteen-Mile House, very rough; to San Mateo, rough; to Palo Alto, fair; to Mountain View, semi-rough; to San Jose, fair; to Gilroy, fair; to San Juan, good; to Salinas, fair; to Soledad, fair; to King City, all kinds and sandy; to Bradley, good to very good, but dusty; to San Miguel, good; to Paso Robles, fair to rough, and dusty; to Templeton, fair; to San Luis Obispo, fair, sandy in places; to Nipomo, rough, sandy in places; to Santa Maria, good; to Garey, semi-rough; to Gaviota, fair to good; to Naples, good, but hilly; to Ventura, fair to good; to New Jerusalem, sandy; to Calabasas, fair; to Hollywood, rough; to Los Angeles, fair.

A piece of road, five miles long between Soledad and King's City is excellent. It seems to be made of limestone on a base of adobe, and, though by no means newly constructed, is not worn at all. The road between Gaviota and Naples, seventeen miles, is good, but so hilly as to be very hard traveling.

There are six steep ascents between San Francisco and Los Angeles, as follows: San Juan Hill, 11 to 18 per cent.; Jolon grade, 8 to 12 per cent., the roadbed new and soft; La Questa grade, 8 to 12 per cent.; the Santa Ynez to Gaviota, 8 to 16 per cent.; Casitas pass, 12 to 18 per cent.; and Canejo grade, 8 to 22 per cent. The 22 per cent. grade is not more than fifty feet long.

MOTORCYCLE MEET AWARDS.

The following is the official announcement of the awards in the motorcycle contests of the Federation of American Motorcyclists, which extended over a period of one week, from July 2 to July 7:

Complete Series—Comprising all tests and the run from New York to Albany and return, and from New York to Cambridge, Md. Highest possible score, 1,317 points—Diamond medal, George N. Holden, Springfield, Mass. (1.3-4 Indian), 1,310 points; silver medal, Frederick C. Hoyt, Springfield, Mass. (1.3-4 Indian), 1,309 points; bronze medal, Oscar Hedstrom, Springfield, Mass. (1.3-4 Indian), 1,308 points.

The others in order of points are as follows: George M. Hendee, Springfield,

Mass. (1.3-4 Indian), 1,306 points; H. A. Gliesman, New York City (1.3-4 Rambler), 1,296 points; N. P. Bernard, Hartford, Conn. (2.1-4 Columbia), 1,295 points; E. M. Coates, New Britain, Conn. (2.1-4 Columbia), 1,292 points; A. J. Banta, New York City (1.3-4 Rambler), 1,277 points; F. A. Baker, Brooklyn, N. Y. (1.3-4 Indian), 1,276 points; Walter J. Zeigler, West Hartford, Conn. (2.1-4 Columbia), 1,266 points; James W. White, Newark, N. J. (1.3-4 Light), 1,255 points.

First Series—Comprising all tests and run from New York to Albany and return; possible points, 817. Combined gold and silver medal, George B. Pieper, Brooklyn (1.3-4-horsepower Indian), 772 points.

Second Series—Comprising all tests and run from New York to Cambridge, Md.; possible points, 817.—Combined gold and silver medal, J. M. O'Malley, Hartford, Conn. (2.1-4 Tribune), 972 points.

PITTSBURG EVENTS FOR JULY 23.

Special Correspondence.

PITTSBURG, July 18.—Secretary Linford W. Smith, of the Automobile Club of Pittsburg, has announced the schedule of events for the automobile races to be held on the Beechwood Boulevard speedway on Saturday, July 23. It is as follows: Class A—From 1 to 7.1-2-horsepower inclusive; Class B, 8 to 13-horsepower; Class C, 14 to 20-horsepower; Class D, 20-horsepower and over; Class E, free-for-all, for club members only; Class F, free-for-all, without restrictions.

Classes A, B, C, D and E are for club members only, the cars to be operated by owners or by Pittsburg chauffeurs, one person to operate not more than one car in any one class.

SYRACUSE CLUB BRAKE TEST.

Special Correspondence.

SYRACUSE, July 18.—Brake tests and speed trials over one and a half miles of macadamized road at Onondaga Valley will be held early next month by the Automobile Club of Syracuse for demonstration to the public of how quickly the largest cars may be brought to a standstill from their greatest speed.

A number of Syracuse cars will compete, and it is likely that Secretary S. M. Butler will be invited to bring the Automobile Club of America's Mors timing apparatus here for the tests. Cups will be given as prizes in the various classes.

MINNEAPOLIS RACE MEET AUG. 17-18.

Special Correspondence.

MINNEAPOLIS, July 18.—An automobile and horse race meeting will be held at the Minnesota State Fair Grounds, August 17 and 18. The cash and trophy prizes offered are valued at \$10,000. It will be the biggest thing of its kind ever given here. The Minneapolis Automobile Club and the Minneapolis Automobile Dealers' Association are promoting the auto events, and machines from many parts of the Northwest will take part.

H. G. BLAKELEY and W. G. Whitcomb, who left Kansas City July 3 for St. Louis to explore the route of the A. A. A. tour, returned home July 11. They reported that they arrived in St. Louis at 10 o'clock July 8, after being five days on the road. The rain which began shortly after their party left Kansas City pursued it across the State. The roads in some places were so muddy that Missouri mules had to be used to haul the cars through. The route was through Warrensburg, Sedalia, Boonville, Columbia, Warrenton and St. Charles. All members of the party say they will go on the tour in August.



PHILADELPHIANS ORGANIZE.

Tradesmen and Owners Form the Motor Power Association to Boom Motoring.

Special Correspondence.

PHILADELPHIA, July 18.—Believing that automobiling is not being properly boomed here under present conditions, a score or more of local manufacturers, dealers and automobile users met at the Aberdeen Hotel last Tuesday night and formed the Motor Power Association of Philadelphia, the object being to foster interest in automobile affairs through the medium of race meets, town parades and shows.

After a number of addresses by leading tradesmen and users, in which the dire need for such a body was plainly set forth, the organization was formally launched by the election of the following officers: President, George A. Banker; vice-president, W. W. Gawthrop; treasurer, W. F. Rudolph; secretary, Harry D. Le Cato. The election of a board of directors was deferred until the next meeting, which is scheduled for Tuesday night of the present week.

It was the unanimous opinion that a large membership was of primary importance in carrying out the plans of the association, and after some discussion the dues were placed at the nominal figure of \$1 a year.

A number of possibilities in the line of fixtures for the remainder of the season came up for consideration, including a race meet, an endurance run, a parade and a motor boat race, but nothing was decided upon apart from the promotion of a race meet for September. Secretary Le Cato was empowered to attend the races at the Empire City track on Saturday with a view to securing entries.

After complete organization the Motor Power Association of Philadelphia will apply for a charter and secure permanent headquarters in a central location, where members may get information, consult the association's lawyer, and have free use of the rooms, official stationery and stenographer's services.

Pending the establishment of permanent quarters, a temporary office has been established at 712 Girard Building, where Secretary Le Cato is receiving daily accessions to the association's membership.

GERMANTOWN CLUB'S NEW HOME.

Special Correspondence.

PHILADELPHIA, July 18.—The handsome new clubhouse of the Automobile Club of Germantown is well advanced toward completion. It is expected that the building will be under roof by August 1, and that on October 1 it will be completely equipped and furnished. Although considerably less than a year old, the club's membership limit of 100 was reached more than a month ago and the question of raising the limit will be discussed and probably favorably decided before the opening of the club's new home.

The plot of ground, at Greene and Carpenter streets, upon which the new 95 by 50-foot clubhouse is located, is in the shape of a triangle whose longest side measures 325 feet, the property to the eastward having been recently acquired to provide ground for tennis courts. The garage, which will be located in the basement, will be large enough for the storage of twenty machines. This has been deemed ample, be-

cause a large majority of the members store their cars at their homes.

Besides bowling alleys and the billiard room, the advisability of providing a squash racket court is being considered. These, with the private dining-rooms, six bedrooms and a completely furnished kitchen, will make the new quarters the best equipped automobile clubhouse in the country.

Pending its completion, the members have been using an old fire company house in the vicinity as a temporary garage and meeting place.

A series of bi-weekly club runs has been inaugurated, the first one of which was held July 5, when upwards of a dozen machines made the trip to and from Valley Forge without a mishap. The next run will be to Spring House.

NEWS NOTES OF THE CLUBS.

LORAIN, Ohio.—The Lorain Automobile Club has been formed with fourteen charter members. The officers for the first year are, Dr. Henry Frederick, president; Captain R. Thew, vice-president; I. Honecker, treasurer, and Frank Floding, secretary.

PEORIA, Ill.—The next run of the Peoria Automobile Club will be to Prospect Heights, where a basket picnic will be held. At a recent meeting eight new members were admitted, making the total membership sixty-seven, corresponding exactly with the number of registered machine owners in the city.

PITTSFIELD, Mass.—At a recent meeting of the Berkshire Automobile Club George E. Hall and Roy Curtiss were elected to membership. President Brandow announced that a new race track was assured for the club at Pleasure Park, subscriptions sufficient to complete the work having been received during the evening.

AURORA, Ill.—A recent run of the Aurora Automobile Club was made up the river to Pottawattomie Park, eleven automobiles and five motorcycles, carrying thirty-five club members, taking part. During the evening a picnic dinner was served in the woods. The trip going and returning was made without mishap. Another run will be held this week.

ANDERSON, Ind.—The Anderson Automobile Club has been formed, the following officers being elected for the ensuing year: George Wright, president; Clarence Shimer, vice-president; W. C. Dunn, secretary-treasurer; directors, Henry Kahn, Charles Lott, Daniel Edward Daniels, Harry Harter, Monroe Bing, Charles East and John Q. Shimer.

PITTSBURG.—The Automobile Club of Pittsburg in a body attended the matinee horse races at Brunot's Island last Saturday as the invited guests of the Matinee Club of Pittsburg and Allegheny. The automobile club members assembled in their cars in front of the Duquesne Club and started for the island at 1 o'clock. A pilot car, carrying a flag, led the way. There were twenty-four persons, riding in seven cars.

COLUMBUS, O.—The Columbus Automobile Association has adopted resolutions censuring the municipal officers of Columbus for the deplorable condition of many of the principal thoroughfares of the city, which, it is claimed, is due to the negligence of the authorities in allowing semi-public corporations to tear up the paving without relaying it properly. The associa-

tion is planning a trip to the Highland County caves, located in the southern part of the State. A map has been prepared showing two routes by which they can be reached. The caves are beautiful natural curiosities, and the roads to be traversed are in fair condition.

LYNN, Mass.—An automobile club has been formed here with the following officers: Thomas W. Gardner, president; Walter S. Haliburton, secretary, and Albert R. Creighton, treasurer. A committee composed of the president, secretary, A. M. Hoyt, Thomas Needham and E. F. Bacheller, was appointed to prepare and submit by-laws at a meeting to be held July 25, when the charter membership list will be closed.

TOLEDO.—The Automobile Club announces that it has secured as a permanent home the entire first floor of the Hotel Collingwood, affording furnished parlors, smoking rooms, dining rooms, and the like. Table d'hôte dinners will be served daily from 6 to 8 p. m., and Sundays from 1 to 3 p. m. A la carte every week day from 10 a. m. to 10 p. m. The board of trustees have selected the regulation gray cap as the official head-gear of the club.

ROCKFORD, Ill.—At a recent meeting the Automobile Club of Rockford discussed at length the matter of scorching, and adopted a resolution providing for the expulsion of members who may be found guilty of speeding their machines in excess of the limit prescribed by law. The resolution provides that fines may also be assessed against offenders. The privileges of the club are such that most offenders after notice will be glad to quit excessive driving in order to remain in the club.

SAN DIEGO, Cal.—The Automobile Club, of San Diego, has been organized, with the following officers: Roy Howard, president; W. J. Wagner, vice-president; George N. Nolan, secretary-treasurer; directors, W. W. Whitson, J. W. Sefton, Captain Humphries, Roy Howard, W. J. Wagner and George N. Nolan, Jr. The club announces its purpose to promote the use of motor vehicles, defend and protect the rights of owners and secure improvements in the condition of public roads.

DAVENPORT, Ia.—The Automobile Club of Davenport has filed articles of incorporation, stating that the club will be athletic and educational in character, and that its objects are to encourage, promote and improve automobiling. Until the new year the directors will be A. L. Hageboeck, W. D. Peterson, F. L. Hillis, T. B. Carson, Sam T. White, B. L. Schmidt and A. H. Ruebsam. The following officers have been elected for the ensuing year: Sam T. White, president; T. B. Carson, vice-president; A. N. Ruebsam, secretary, and B. L. Schmidt, treasurer.

FITCHBURG, Mass.—The Wachusett Automobile Club held a run on Saturday, July 16, to Concord and Lexington, nine cars being in line. The start was made from the club's quarters at 9 o'clock, stopping at Hotel Sweetwater, Bedford Springs, for dinner. After a short time on the road a severe thunder and rain storm was encountered, forcing a number of the party to seek shelter in a nearby barn. After a short wait, the storm somewhat abating, another start was made. But a second shower overtook them, after running a short distance and several turned back to again take refuge in the barn. Just before reaching it the barn was struck by lightning and burned to the ground. The run was then continued and finished with but two more mishaps, one machine receiving four tire punctures, and another breaking down at Leominster, the occupants arriving home Sunday morning.

AMERICAN AND FOREIGN AUTOMOBILE AND AUTO BOAT FIXTURES.

Automobiles and Motorcycles.

July 23.—Straightaway Speed Trials and Races. Beechwood Boulevard, Pittsburgh. A. C. of Pittsburgh.
 July 25-26.—Circuit des Ardennes, Belgium. A. C. of Belgium.
 July 25-Aug. 10.—American Automobile Association Tour to St. Louis.
 July 30.—Race Meet, Newport, R. I., Newport Amusement Association.
 Aug. 1-3.—Bexhill Meet and Races. England. A. C. G. B. & I.
 Aug. 6.—Second Annual Meeting of Missouri and Kansas Auto Association, at Leavenworth, Kan.
 Aug. 11.—Automobile Day and Parade at the World's Fair, St. Louis.
 Aug. 17-18.—Races at State Fair Grounds, Minneapolis.
 Aug. 19-20.—Race Meet at Glenville Track, Cleveland. Cleveland A. C.
 Aug. 21.—Semmering Hill Climb, Austria. A. C. of Austria.

Aug. 21.—World's Fair Race Meet. St. Louis Fair Grounds Association.
 Aug. 22-Sept. 4.—French Industrial Vehicles Trials, Paris. A. C. of France.
 Aug. 27.—Motor Bicycle Non-Stop 100-Mile Run, British Motorcycle Club.
 Aug. 28.—Ventour Hill-Climbing Contest at Avignon, France.
 Aug. 29-Sept. 3.—Show and Track Races in Milwaukee. Milwaukee A. C.
 Sept. 2.—Chateau Thierry Hill Climb, France. A. C. of France.
 Sept. 16.—Race Meet, Poughkeepsie, N. Y., Dutchess Co. Agricultural Society.
 Oct. 5.—Dourdan Kilometer Trials. *Monde Sportif*.
 Oct. 8.—Vanderbilt Cup Race, Long Island, N. Y.
 Oct. 9.—Gallion Hill-Climbing Contests. France. *L'Auto*.
 Oct. 16-25.—Leipzig Cycle and Motor Show, Germany.
 Nov. 20.—French 100-Kilometer Trials, Algeria.

Auto Boats and Launches.

July 23-25.—Motor Boat Races. Lucerne, Switzerland.
 July 26-27.—Reliability Trials for Motor Boats. England.
 July 30.—Harmsworth International Cup Race. The Solent, England.
 July 30.—Atlantic Yacht Club Races. Sea Gate, N. J.
 Aug. 5-11.—Paris-Decauville Motor Boat Race.
 Aug. 6.—Larchmont Yacht Club Races.
 Aug. 12.—Gaston-Menier Cup Race. France

Aug. 13.—Manhasset Bay Yacht Club Races. L. I. Sound.
 Aug. 13-14.—Calais-Dover-Calais Race. English Channel.
 Aug. 15.—Calais-Boulogne-Calais Race. English Channel.
 Aug. 18.—New York Yacht Club Races.
 Aug. 20.—Brooklyn Yacht Club Races.
 Aug. 27.—Larchmont Yacht Club Races. Long Island Sound.

BULLETS FOR MOTORISTS.

Long Island Deputy Sheriff Adopts Dangerous Method of Making Arrests.

Shooting at an automobile with a revolver in order to bring it to a halt is the latest method of enforcing speed regulations practised by Sherman F. Wicks, a Long Island Deputy Sheriff, and local automobilists are mightily stirred up over the incident. John Foley, Jr., of New York City, was the owner and driver of the automobile involved, and was running eastward on the principal street of Patchogue, L. I., on Sunday afternoon, July 17, together with three men friends, when a man came out into the road in front of the automobile and shouted to the driver to stop. Mr. Foley says that he was running well under 10 miles an hour at the time and that the man who ordered him to stop showed nothing to indicate his official capacity. Therefore the machine was not stopped, and Deputy Sheriff Wicks was forced to step out of the way. As soon as the automobile had passed him, however, he drew a revolver and fired two shots at it, the bullets entering the rear of the body at an angle, one lodging in a cushion an inch from the back of one of the passengers. Even then Mr. Foley did not stop, but proceeded to his destination, and later returned and informed the deputy that he would be proceeded against. He did not await the service of the warrant that Wicks procured later, but engaged counsel and surrendered himself.

THINKS SHOOTING JUSTIFIED.

Shooting, not automobiles but automobilists, is, according to Magistrate Robert G. Cornell, of New York, perfectly justifiable in order to prevent speed excesses.

Richard D. Willard was arraigned before Magistrate Cornell in Jefferson Market Police Court on the charge of driving an automobile through East Thirty-eighth street, New York, at the rate of 20 miles an hour, or a mile in three minutes, and the justice remarked:

"It seems to me that a man would be perfectly justified in shooting the chauffeurs of these squawking nuisances that go rushing through the streets."

And the Magistrate went on to say that down where he lived on Long Island the residents hated automobiles; and then informed Mr. Willard that his bond would not be accepted, but a real estate bond demanded, which would be inquired into closely. Mr. Willard was held for the Special Sessions in \$300 bail, which was furnished.

When interviewed later on the subject of this statement the magistrate is reported as having reiterated the extraordinary remark, adding that he did not consider the expression an intemperate one.

Automobilists throughout New York City are highly indignant, especially in view of the efforts being made to stamp out hoodlumism, which manifests itself in attacks on automobilists.

MINNETONKA LAUNCH RACES.

Rough Water Interferes With First Event in the Northwest.

Special Correspondence.

MINNEAPOLIS, July 18.—The first motor boat race in the Northwest was held Saturday afternoon on Lake Minnetonka during a heavy sea that made fast time impossible, and made the water too dangerous for very small craft to take part.

The race was a handicap, run over a fifteen-mile three-legged course. Twenty-seven boats started out of thirty-six entered.

The starting and finishing point was Tonka Bay, which is this year proving the most popular resort at the lake.

The race was won by J. E. Gage's *Minneska*, with a handicap of 38 minutes, in 1:55:03. Second place was won by C. D. Heych's *Huiron*, time 1:49; third by Julius Newgard's *Gopher* in 2:04:58, and fourth by H. W. Watson's *Kia-Ora* in 1:48:05.

The best time of the race was made by Nichols Brothers' *Widgeon*, a 20-horse-power boat, which covered the fifteen-mile course in an hour and a half.

The second best time was 1:43, made by J. H. Howard's *Manitou*.

The feature of the race was a contest between *Manitou* and W. P. Davidson's *Billy D*, which started half a minute apart

and were together during the entire run of fifteen miles.

The race was held mainly for the purpose of ascertaining the amount of interest that existed at the lake in auto-boating, and as this has been determined satisfactorily, other races will be held during the summer.

ATLANTIC YACHT CLUB'S RACES.

The auto-boat races of the Atlantic Yacht Club on July 16 proved very uninteresting, as but four boats started. The course for the larger classes was from off the club station at Sea Gate, Coney Island, up through the Narrows and around the bell buoy off Robbins Reef—twenty nautical miles. The smaller launches had a course of ten miles laid out for them. The only starter in Class B was *Nokomis*, Captain Van Clief, and her time for the twenty miles was 2:15:20. In Class R the *Vingt-et-Un II* started alone, and her time for the twenty miles was 1:12:24.

The only competition was in Class K, in which one of the Atlantic Yacht Club launches was matched against *Nada*, C. A. Godschalk, the latter steered by Miss Godschalk. Some rough water for a 20-foot launch was met on the way, but the *Nada* covered the ten miles in 1:11:27, the *Atlantic's* time being 1:21:40.

AUTO BOATS AT MARBLEHEAD.

In the third day's races of the Eastern Y. C.'s power boat regatta off Marblehead, last Wednesday, the *Mercedes* again suffered a breakdown which put her out of the competition, this time before the race began. Consequently the *Autowin* was again the star. In addition to winning two cups in her class she won the special cup offered by Rear-Commodore W. O. Gay for the boat under 40 feet over all making the smallest total elapsed time in three special races.

Among the autoboots, the winners and the distances were as follows: First class, three laps, 18 3/4 miles; *Fiat*, 1h. 13m. 19s.; Gay cup race, four laps, 25 miles; *Autowin*, 2h. 8m. 23s. The average speed of the former was 15.34 miles an hour, and of the latter 11.69 miles an hour.

GREASING one's automobile number so that dust will stick and conceal the figures isn't obeying Chapter 473 of the Acts of 1903, according to Judge Adams, who today fined F. Shirley Boyd \$10 for doing it. —*Boston Traveller*.

INDUSTRIAL

DISAGREE ON LIVERY RATES.

Special Correspondence.

SAN FRANCISCO, July 13.—The spirited protests of Managers C. R. Scott, of the Scott-Blakelee Auto Livery Company, and Frank E. Hartigan, of the Mobile Carriage Company, before the aldermanic committee on licenses against the proposed reduction of the rental rate for livery cars from \$5 to \$2.50 an hour, is discountenanced by Manager C. A. Hawkins, of the White Carriage Company.

"I'm opposed to this protest," he says. "Why have the high rate, which prohibits the average person from using the machines, when a fair rate gives us good enough income on the investment? The protesting managers, through their arguments before the city license committee, give the public a wrong impression, which I am going to try to remove, and show that the auto can successfully compete with the horse." Mr. Hawkins has sent to the Board of Aldermen a letter which reads in part as follows:

"The life of a good automobile, with ordinary repairs and adjustments, is approximately the same as that of a carriage and there is no reason that I know of why they should not be operated at the same expense to the public for the same service as is charged for carriages and hacks.

"It is, of course, true that an automobile is a much more comfortable and luxurious means of conveyance and will cover the same ground in a great deal less time than can be done by horses. It is also an absolute fact that the work can be done by an automobile at no greater expense than the horse. If you want the proof of this and will have your committee call at my office I shall be glad to show you the books."

NEW CLEVELAND GARAGE.

Cleveland's list of fine garages has been augmented by the new establishment of the Automobile Garage and Repair Company, located on Huron street between Euclid avenue and Erie street, in the best part of the downtown section of the city. The building is a handsome four-story brick structure, measuring 70 by 100 feet. The garage company has taken a long lease on the property and has rearranged some of the details to suit its requirements.

The first floor contains the general sales office, women's reception room, handsomely fitted up, with toilet room adjoining, private offices, stenographers' room and general storage room. The rear of this floor is partitioned off for light repair work, charging station and wash room. For the repair work there are two well-lighted pits and convenient benches. The wash rack is 20 by 30 feet, large enough for three machines at a time. It is fitted with overhead and side lights, so that all parts of the car can be seen at night. The charging plant is arranged to take care of 24 vehicles at a time, there being twelve switches arranged to charge in series two on a line. Arranged along a wall are a number of lockers which are rented to patrons. On an elevated platform are two gasoline storage tanks supplying 76 and 68 degree gasoline and provided with automatic measuring and regulating devices supplied by S. F. Bowser & Co.

The basement, reached by a large electric elevator connecting all floors, is divided into several departments. There is a dark, dry storage room for tires, a well-lighted room for battery testing, repairing and charging, a battery stock room, and an oil

room containing several oil tanks also provided with automatic measuring and regulating devices.

The second floor contains the general sales room and the stock room. In one corner of the sales room is an office for the bookkeepers.

The third floor is equipped for general repair work and contains an excellent complement of machine tools. The fourth floor is to be fitted up as a general manufacturing establishment, as the company is preparing to engage in the manufacture of a number of automobile parts and specialties.

The company made an excellent start in its old quarters on Erie street last fall. It has sold nearly 100 Autocars throughout Ohio, besides a number of Packards and Pope-Waverley electric cars in Cleveland and the vicinity. The company is agent for a line of specialties and has done well with them in this district. The management of the business is now in the hands of J. M. Belin, a clever little Frenchman, who has been in this country long enough to become thoroughly Americanized and well up on the requirements of the trade in this city.

RECENT INCORPORATIONS.

Plainfield Auto Garage, Plainfield, N. J.; capital, \$25,000. Incorporators: Andrew Wilson, Joseph B. Longhead and Elizabeth Longhead.

Hyne Motor Co., Plainfield, N. J.; capital, \$25,000. Incorporators: Harrison Codrington, William B. Harsel, Charles F. Fulmer and Charles F. Hyne.

Citizens Auto Transit Co., Cleveland, O.; capital, \$600,000. To operate automobiles, omnibuses and carriages. Incorporators: H. H. McKeehan, W. G. Merick, W. B. Stewart, G. W. Cottrell and Julian W. Tyler.

Motor Vehicle Transportation and Delivery Co., New York City; capital, \$10,000. Directors: C. R. Ruckert, Bensonhurst; Charles Schmitt, Jersey City Heights, and C. R. Smith, Brooklyn.

Merkel Motor Company, Milwaukee; capital, \$200,000. Incorporators: A. B. Ferdinand, Joseph F. Merkel and W. J. Merkel.

Broadway Automobile Exchange, New York City; capital, \$2,000. Incorporators: L. C. Jandorf, H. N. Jandorf and H. E. Harkins.

Boston Show Company, Boston, Mass.; capital, \$10,000; to promote automobilism, race meets and shows. Incorporators: Kenneth A. Skinner, Harry Fosdick, H. McAlmond and C. L. Campbell.

Automobile Depot, New York City; to sell, rent and store automobiles; capital, \$5,000. Directors, E. C. Griffith; P. M. Pelletreau, and W. H. Estes.

Fair Mfg. Co., Minneapolis; capital, \$50,000; to manufacture and deal in motors and appliances. Incorporators: Joseph Mullen, P. J. Harlin, and Henry Cowley.

Eureka Manufacturing Company, of Detroit; capital stock, \$50,000; to manufacture automobile machinery, china kilns and fire brick. Incorporators: Henry Egle, William Egle, Ralph E. Northway and Andrew V. Erving.

Battery Power Co., Milwaukee; capital stock, \$30,000; to manufacture storage batteries of a new type. The company will occupy a three-story brick building on Madison street, Milwaukee. Its portable batteries will be adapted for use in automobiles and the company claims that a battery of twenty-four cells weighing 390 pounds will have a voltage of 55 volts and possess 160 ampere hours' capacity. This would be sufficient to run a machine from 75 to 100 miles on a single charge.

TO WHOM IT MAY CONCERN.

The following inquiries have been received by THE AUTOMOBILE:

Fritz Schmidt, Stockholm, Sweden, asks for the addresses of builders of commercial automobiles having a capacity of from 2 to 3 tons, propelled by internal combustion motors.

G. H. Ireland, Box 577, Montreal, Canada, wishes to know the address of a manufacturer who can supply him with an automobile having a dynamo coupled to the vehicle motor, the dynamo to furnish 25 amperes at 52 volts to be used to operate a moving picture machine.

Mazza & Parravicini, Milan, Italy, wish to secure the agency for a good American automobile.

NEW GARAGES AND IMPROVEMENTS.

Mr. VERNON, Ohio.—A garage and repair shop has been opened here by Ralph E. Vail.

GRAND RAPIDS, Mich.—Work has been commenced on the automobile salesroom and garage of J. K. Johnson on the south side of Louis street, between Market and Ottawa streets.

LA CROSSE, Wis.—The Pioneer Foundry Company has purchased the plant and business of the Bell Machine Company, at 110-112 Main street. Improvements to the extent of about \$5,000 will be made in the plant of the Pioneer Company, and automobile repairing and the manufacture of gasoline engines will be more extensively engaged in under the supervision of George Bell, formerly in charge of the Bell Machine Company.

ROCKFORD, Ill.—The Rockford Tack & Nail Company has equipped a portion of its factory as an automobile garage and repair station, and now has ample facilities for the speedy repair of both American and foreign makes of machines.

NORTH ADAMS, Mass.—An automobile garage and repair station has been opened on Ashland street by F. L. Rand. The station has a storage capacity for sixteen machines.

FITCHBURG, Mass.—George L. Lewis, on Ludenburgh street, and H. C. Dean, on Water street, have established garages, and have ample facilities for general automobile repair work. In addition, they also carry a full line of supplies.

SOMERVILLE, Mass.—Hill & Holt, 79-81 Bow street, are agents for the Ford automobiles. They are conducting, in addition to their sales business, an up-to-date storage and repair station, and carry a line of general automobile supplies.

LOS ANGELES.—Elmer R. Ridsen, one of Los Angeles' pioneer bicycle dealers, has entered the automobile field and is now managing the station at 651 South Broadway, formerly conducted by Olive & West. The shop has been enlarged, and under the name of the Western Garage will do a general repair, storage and sales business.

SOUTH BEND, Ind.—A handsome and commodious building situated on the corner of La Fayette and Wayne streets is nearing completion and is to be occupied by W. H. Barger. The building is a brick and steel structure 150 by 60 feet, and will have a complete plate glass front. Mr. Barger will have a full equipment for charging electric vehicles and everything necessary for making repairs.

CLEVELAND.—The Chisholm & Phillips Automobilia is now occupying its handsome new establishment at 1197 Euclid avenue, opposite Olive street. The building is a three-story brick structure designed and built especially for the company's requirements. The company is featuring the Peerless, Knox and Royal lines and is meeting with excellent success.



Ridler, Bennett & Auten have secured the agency for the Oldsmobile at Oelwein, Ia.

The clubrooms of the Automobile Club of America will be closed during the month of August after 7 o'clock p. m.

The Park Commissioners of Boston, Mass., have purchased a Grout steam automobile to be used in official business.

A sight-seeing automobile has been started over a route in Boston which includes the principal points of interest.

The recently incorporated Detroit Motor Car Co. is seeking a manufacturing site in the town of Wyandotte, Mich.

H. Godschalk, of Philadelphia, will soon attempt a round trip to Atlantic City on his Baker electric without recharging his batteries.

John H. MacAlman has been elected treasurer of the Boston Automobile Dealers' Association, incorporated recently, with a capital of \$5,000.

It is reported that an air-cooled automobile is to be manufactured in Boston at an early date, and that the first machine is almost finished.

The Napier Company of America has opened a salesroom adjoining the Massachusetts Automobile Club on Boylston street, Boston.

Philadelphia will have but one representative on the St. Louis tour—W. B. Saunders, publisher of medical books, who will go in a 20-horsepower Winton.

The addition to the clubhouse of the Massachusetts Automobile Club, Boston, was completed last week. The addition will be used altogether for garage purposes.

Mrs. Chouteau Scott, of St. Louis, has a new Columbia car of 30-horsepower. She drives the car herself. It is the largest machine driven by any woman in the State of Missouri.

The automobile race meet which is to take place at Newport, R. I., in August is already attracting the attention of Boston owners of fast machines, and a large list of entries is looked for.

The Kansas City Board of Park Commissioners has approved an ordinance limiting the speed of automobiles on the boulevards and park driveways to eight miles an hour.

The Mississippi Valley Automobile Company has built an annex to its garage for the accommodations of visitors' autos during the month of August. The annex provides for 100 machines.

The Cleveland Motor Co., against which an involuntary petition in bankruptcy was filed some time ago, has submitted a schedule placing its assets at nothing and its liabilities at \$22,120.

A Michigan light touring car made a good showing at the automobile races held at Recreation Park, Kalamazoo, Mich., on July 4. This machine won the 2-mile race in which it was entered with ease, the time being 3 minutes 29 seconds.

The increasing business of the Reed-Underhill Company, which has the Boston agency for the Knox waterless gasoline automobiles, has made it necessary to secure larger and more central quarters, where both business and pleasure vehicles can be

handled. After August 10, therefore, the company will be found at 222-228 Columbus avenue. During the past six months thirty Knox delivery vehicles have been sold by the Reed-Underhill Company.

J. M. Smelzer, of Anderson, Ind., is endeavoring to interest local capital in establishing an automobile factory at Columbus, Ind., he having invented an engine especially for automobiles.

Negotiations are now under way between the Chamber of Commerce of New Castle, Pa., and a Buffalo manufacturing firm for the establishment at New Castle of a factory for the manufacture of automobiles.

The new quarters of the Knox automobiles on Columbus avenue, Boston, is now rapidly nearing completion. Besides ample accommodations for the display of cars, considerable space will be devoted to the convenience of patrons.

Lit Brothers' department store in Philadelphia has announced the installation of a full line of Reliance motorcycles and parts. Gimbel Brothers, of Philadelphia, recently began selling motor boats. Wanamaker has been selling automobiles for three years.

The Dayton Electrical Manufacturing Company, Dayton, O., is marketing the entire output of ignition plugs of the Climax Ignitor Co., Amesbury, Mass. The new plug has been called the Magnetic Ignition plug.

Governor La Follette, of Wisconsin, will make a campaign automobile tour of the State during the late summer and fall. The Governor will use the automobile, because by this means he will be able to address the thousands of voters whom it would be impossible to reach by railroad.

The Newton Graphic Publishing Company, of Newton, Mass., has just issued a very convenient list of the automobilists registered in the State of Massachusetts, giving as well the motive power and rated horsepower of the automobiles. The book is well bound in leather.

The Boston branch of the White Sewing Machine Company, having outgrown its quarters at Berkley and Tremont streets, has just broken ground for a new five-story brick building at Pleasant and Elliot streets. It is expected that the new place will be ready for occupancy about September 1.

Fame Fire Company No. 6, of Wilmington, Del., which recently appointed a committee with power to have an automobile chemical engine made to order, has abandoned the idea for the present. A member of the company says that the committee had written to two manufacturers in regard to such a machine, but neither would give a guarantee such as was asked for by the company.

The Columbia 12-horsepower car which won a first and third prize in the Mount Washington hill-climb was equipped with regular road gearing. The driver of this machine, H. W. Alden, of the Electric Vehicle Company, Hartford, states that after the first contest the descent of the mountain was made with the car well loaded with five persons and some baggage, bringing the total weight of car and load up to about 3,000 pounds. No trouble was experienced and the bottom was reached quite comfortably in 55 minutes.

Several of the most prominent automobile owners of San Francisco and the neighboring towns on the peninsula propose to build a toll-road to Redwood City, about thirty miles from 'Frisco. It is planned to make the road a model of construction and by the example foster the sentiment in favor of good roads.

Plans for the holding of an automobile exhibition in Milwaukee this summer have been abandoned, but it is probable that automobile and motorcycle races will be run in connection with the annual State fair to be held here in September under the management of the Wisconsin State Board of Agriculture.

The first consignment of automobiles for the bus line of the East End Auto Traffic Company, of Pittsburg, has been received, and S. J. McFerrer, manager of the company, announces that the line will be in operation August 1. Plans have been drawn for the erection of a storage and repair plant at Craig street and Grant boulevard.

An order discharging Charles L. Carrick as receiver of the American Motor Boat Company, of Marion, N. J., has been filed in Trenton. This suit was brought by Albert T. Otto, of Montclair, in behalf of the creditors of said company. The business of the firm consisted largely in the manufacture of launches and tenders for larger vessels.

Notwithstanding railroad and coast navigation statistics show that the June exodus of San Franciscans for interior and coast resorts and to the St. Louis Fair aggregates upwards of 30,000, the automobile dealers are complacent, since they are easily selling all the machines they can secure from the factories, and they assert that present indications are for continued strong demand, even exceeding that of the first half of the year.

The National Capital Automobile Co., of Washington, D. C., has been reorganized into practically a new corporation under the name of the National Automobile Co., which will take over all the property of the old company. Articles of incorporation have been filed by F. M. White, E. P. Nussbaum and W. L. White. Capital stock is \$20,000, authorizing the company to do a general automobile and motor boat business. It will occupy the newly erected garage on Fourteenth street and will handle the Oldsmobile, Peerless, Pierce and Franklin cars, and Racine motor boats. The company is officered by E. C. Graham, president; H. B. Mirick, vice president and treasurer; E. P. Nussbaum, secretary. The general management is in the hands of J. C. Wood.

The Oldsmobile Company has made an improvement in the cooling system of its runabout that will, it is stated, completely avoid the difficulty that has sometimes been experienced through the heating of the cooling water of this machine when the motor is worked hard. Heretofore the circulation has been from the cylinder to the radiator, radiator to pump and from the pump back into the cylinder, the tank being connected through a single pipe to the pipe connecting the cylinder to the radiator, and was thus not included in the circulating system. Now, however, the tank forms part of the circulating system, being placed between the cylinder and the pump and, of course, piped to both. The first cars containing this improvement were received in New York City last week.

INFORMATION FOR BUYERS.

TIRE CORE.—The idea of making a tire possessing the resiliency of the pneumatic combined with the immunity from trouble of the solid tire has been with tire manufacturers and users for a long time, and various forms of cellular tires, cushion tires, semi-pneumatic tires and solid core tires



MILLER TIRE CORE.

have been evolved. Charles Miller, 309 Water street, Binghamton, N. Y., has patented a tire core that is designed to possess the desirable features without the defects of others. This core is designed to slip into the shoe in place of the inner tube. The interior of the core is divided into cells by diaphragms spaced quite closely, the spaces between them being divided through the center by partitions extending from the rim to the tread. The elasticity of the rubber, both under compression and tension, is thus taken advantage of, and, as there is no air

BULLOCK IGNITER.—An igniter quite essentially different from the usual contact and jump spark igniters, is that shown in partial section in the accompanying illustration. Its operation may best be understood by comparison with that of the automatic gas-lighter which it most nearly resembles, although it is of course found far more substantial. The electro-magnet is in the form of a spool, and the armature is a bent shell of soft iron partly encircling the magnet, and pivoted to one pole, the other end approaching the other pole, and attracted thereby when the circuit is closed. This movement of the armature rotates a stem projecting from the shank or threaded stem of the plug, and terminating at its inner end in a contact finger, which makes contact with an insulated fixed electrode. When the armature is attracted by the closing of the circuit this finger breaks contact with the electrode. Owing to the swiveling motion of the stem, which is exactly like that used in the regular contact spark igniter, no packing is required to keep it tight. As the contact is broken and the spark produced, the armature is returned by a spring, and contact is again made, a continuous vibration and succession of sparks being thus produced. This igniter is made in several styles, most of which

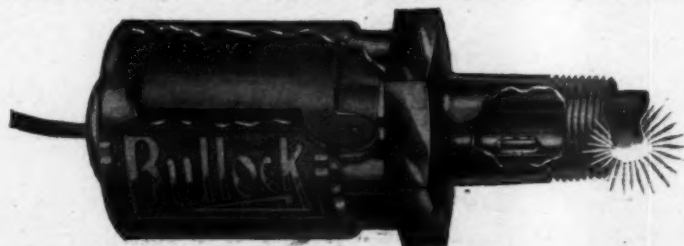


HAWKEYE WRENCH WITH ALLIGATOR JAWS AND THREAD CUTTING DIES.

pressure, punctures have no effect on the tire, which is said to be perfectly proof against breaking down.

NEW WRENCH.—The latest novelty in wrenches is the tool sold by the Hawkeye Wrench Co., Marshalltown, Iowa. This handy instrument has a sort of family resemblance to the familiar S-wrench, but the jaws in the ends are of the alligator type and of different sizes, and will handle both pipe and other round stock and nuts within the limits of their capacity. In the center

require an ordinary spark coil similar to that used for gas lighting. Eight cells of sal-ammoniac or dry battery are used, or a 12-volt dynamo. The contact points are of iridio-platinum, and may be readily removed when worn. The winding of the electro-magnet is bare copper wire wound on mica, and impregnated with a special fire, water, and oil proof composition, which is practically indestructible. The special advantage of the igniter is that it does away with any external mechanism



BULLOCK VIBRATING IGNITER FOR PRIMARY CURRENT.

of the shank three dies are formed for cutting bolt threads 5-16, 18 threads, 1-2 13 threads and 3-8 16 threads, these being regular standard bolt threads. With this tool in the bag a bolt with a battered thread will lose all its terrors. The wrench is made of the finest steel, well tempered and is nickel plated.

such as required in the ordinary contact spark igniter, the only thing necessary being the ordinary current distributor, or timer, used with jump spark ignition.

REFRIGERATOR BASKET.—There are not many things the automobilist dislikes more than to go out for a day's trip in warm weather and find, at midday, that the dainty

lunch, carefully prepared and packed, is warm and dried up, and the drinkables tepid and uninviting. This is no longer necessary, however, as the Burlington Basket Company, 33 Main street, Burlington, Iowa, manufactures a refrigerator basket for just such occasions. The basket



BURLINGTON REFRIGERATOR BASKET.

is divided into two compartments, a large one for the provisions and a small one, at one end, for ice. The entire basket, covers and all, is lined with non-conducting material, and the covers are a close fit, so that heat is "kept out" and the ice maintains a low temperature which preserves the freshness of the contents. These baskets are made in two sizes, No. 1, 18 inches long, 10 inches wide, and 8 inches deep, and No. 2, 20 inches long, 13 inches wide and 10 inches deep.

LIGHT TONNEAU.—The Marble-Swift Automobile Company, Chicago, Ill., has recently placed on the market a light tonneau at a popular price. The most noticeable feature of this car is the transmission gear, which is of the friction type, and, in addition to its ordinary duty, takes the place of the equalizing or differential gear. The car weighs 1,550 pounds. The gasoline motor is a triple cylinder upright one, and the builders rate it at 16-horsepower, suf-



MARBLE-SWIFT FRICTION-DRIVE CAR.

ficient to drive the car at a maximum speed of 35 miles an hour.

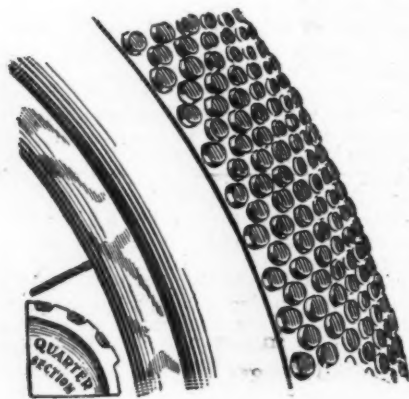
CUSHION SPRINGS.—A large, plain-figured office calendar has been presented by the Jackson Cushion Spring Co., Jackson, Mich., to its patrons. The advertising value of this calendar is in the illustration, over the calendar pad, which shows a part of a set of Jackson springs, which are all connected together in such a way that they cannot get loose and punch holes through the seat covering. An unusual feature of the calendar, by the way, is that it extends to January 1, 1906.

AUTOMOBILE INSURANCE.—Automobilists may protect themselves against loss through accidents or damages caused by their machines, and against fire loss on their cars by securing liability and fire policies from Wilson R. Smith, Produce Exchange Building, New York city.

INFORMATION FOR BUYERS.

GASOLINE FUNNEL.—Every automobilist knows how much trouble may be caused by a little dirt or water in his gasoline and how difficult it sometimes is to locate troubles arising in this way, and will appreciate any device that will tend to obviate such things. The Breeze funnel is designed to allow nothing but clean gasoline to run into the tank. It is provided with a fine gauze strainer which is raised from the bottom so that water which is heavier than gasoline, cannot rise high enough to pass through, and the gauze takes care of the sediment. After using the funnel any water or dirt can be seen in the bowl and thrown away. If the gasoline remaining in the bowl is clean, it can be returned to the supply tank. This useful accessory is made of spun copper and is very strong. Two sizes are supplied, one for motor cycles and a larger one for automobiles. The Breeze Motor Manufacturing Co., 33 Court street, Newark, N. J., manufactures the funnel.

NON-SLIPPING TIRES.—The Bailey "Won't Slip" tires are designed not only to prevent slipping in places where ordinary tires insist on slipping, but also to increase the wearing qualities of the tire and prevent punctures. The makers claim it to be 90



BAILEY "WON'T SLIP."

per cent. puncture-proof, non-skidding under any conditions, fast, owing to absence of suction and exceedingly durable. The "Won't Slip" tire is manufactured by C. J. Bailey & Company, 22 Boylston street, Boston, Mass. The Peerless automobile used by A. E. Morrison in the Mount Washington "Climb to the Clouds" was equipped with "Won't Slip" tires, and this car made the record for American gasoline machines.

MICHIGAN CARS.—The Michigan light touring car is the subject of a handsome little booklet issued by the Michigan Automobile Company, Ltd., Kalamazoo, Mich. The subject is treated in an interesting manner and the mechanical points of the machine are explained in such a way as to be intelligible to one not an expert in such matters. At the same time, the ground is thoroughly covered, and no point seems to have been slighted. The car is propelled by a 12-horsepower double cylinder opposed motor with mechanically operated valves.

YOKE ENDS.—The Billings & Spencer Co., Hartford, Conn., is prepared to furnish from stock, drop forged steel rods and yoke ends of various dimensions, the range of sizes covering everything likely to be required in automobile construction. The yokes can be supplied either milled or blank.

A circular issued by the company gives full information in tabulated form.

AUTOMOBILE STORE.—W. E. Mezger, 265-269 Jefferson avenue, Detroit, Mich., has issued an exceedingly handsome little booklet, entitled "The Care of the Automobile," describing in detail his automobile store, which he claims is the finest store in the United States devoted exclusively to the selling, repairing and storing of automobiles. Both gasoline and electric cars are sold, and machines of any kind repaired. A large and complete stock of extra parts, and also of sundries and supplies, is always on hand, and the establishment is open day and night.

G & J TIRES.—"The Home of the G & J Tire" is the title given by the G & J Tire Co., Indianapolis, Ind., to an exceedingly attractive booklet in which the various stages of tire manufacture in the Indianapolis plant are illustrated and described, from the crude rubber as gathered by the natives of South America to the final packing of the finished pneumatics. All the processes are described in an interesting way, and illustrated by half-tones made from photographs taken in the various departments of the factory. Any one who cares to learn how automobile tires are built will be repaid by sending for this pamphlet.

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